STORAGE

QL
761
E574, v.29, no.10

Biological & Medical Serials

SUBSCRIPTIONS FOR 1919 ARE NOW DUE

(SEE INSIDE OF COVER)

DECEMBER, 1918.

ENTOMOLOGICAL NEWS

Vol. XXIX. No. 10.

Benjamin Dann Walsh
1808-1869.

PROPERTY
TOR[illegible] BRANCH
ENTO[illegible] SOCIETY
OF ONTARIO
No. CANCELLED

PHILIP P. CALVERT, Ph.D., Editor.
E. T. CRESSON, Jr., Associate Editor.

HENRY SKINNER, M.D., Sc.D., Editor Emeritus.

ADVISORY COMMITTEE:

EZRA T. CRESSON. J. A. G. REHN.
PHILIP LAURENT, ERICH DAECKE. H. W. WENZEL.

PHILADELPHIA:
THE ACADEMY OF NATURAL SCIENCES,
LOGAN SQUARE.

Entered at the Philadelphia Post-Office as Second-Class Matter.
Acceptance for mailing at the special rate of postage provided in Section 1103,
Act of October 3, 1917, authorized on July 19, 1918.

ENTOMOLOGICAL NEWS

published monthly, **excepting August and September,** in charge of the Entomological Section of The Academy of Natural Sciences, Philadelphia, and The American Entomological Society.

ANNUAL SUBSCRIPTION, $2.00 IN ADVANCE.

SINGLE COPIES 24 CENTS.

Advertising Rates: Per inch, full width of page, single insertion, $1.00; a discount of ten per cent. on insertions of five months or over. No advertisement taken for less than $1.00—Cash in advance.

☞ All remittances, and communications regarding subscriptions, non-receipt of the NEWS or of reprints, and requests for sample copies, should be addressed to ENTOMOLOGICAL NEWS, 1900 Race Street, Philadelphia, Pa. *All Checks and Money Orders to be made payable to the* ENTOMOLOGICAL NEWS.

☞ All complaints regarding non-receipt of issues of the NEWS should be presented within three months from date of mailing of the issue. After that time the numbers will be furnished only at the regular rate for single copies.

☞ Address all other communications to the editor, Dr. P. P. Calvert, Zoological Laboratory, University of Pennsylvania, Philadelphia, Pa., from September 15th to June 15th, or at the Academy of Natural Sciences, from June 15th to September 15th.

ADVICE TO OUR SUBSCRIBERS—PLEASE NOTE THAT

If your copy of this issue contains a yellow renewal blank it is a notice that your subscription has expired and renewal has not been received at this mailing.

No receipts for subscriptions will be given unless especially desired.

SPECIAL NOTICE TO AUTHORS

Owing to increased cost of labor and materials, only one plate (of line-engravings only) will be published in each issue of the NEWS during 1918, except where authors furnish the necessary blocks, or pay in advance the cost of making blocks, and pay for the cost of printing the plates. Information as to the cost will be furnished in each case on application to the Editor. Blocks furnished or paid for by authors will, of course, be returned to authors after publication, if desired.

☞ The printer of the NEWS will furnish reprints of articles over and above the twenty-five given free at the following rates: Each printed page or fraction thereof, twenty-five copies, 15 cents; each half tone plate, twenty-five copies, 20 cents; each plate of line cuts, twenty-five copies, 15 cents; greater numbers of copies will be at the corresponding multiples of these rates.

500 PIN-LABELS, 25 CENTS! All Alike on a Strip.

Smallest Type. Pure White Ledger Paper. Not Over 4 Lines or 30 Characters (13 to a Line) Additional characters 1c. each, per Line, per 500, Trimmed.

C. V. BLACKBURN, 12 Pine St., STONEHAM, MASS., U. S. A.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

THE ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XXIX. DECEMBER, 1918. NO. 10.

CONTENTS:

Swain—Miscellaneous Studies in the Family Aphididae (Hem., Hom.).. 361
Skinner—A Gynandromorph of Callosamia angulifera and Melitaea phaeton aber. streckeri (Lep.)..... 369
Dozier—An Annotated List of Gainesville, Florida, Coleoptera..... 370
Howard—A Note on Insects Found on Snow at High Elevations..... 375
Change of Address..... 377
Honors to Entomologists..... 377
McDunnough—Dates of Issue of the Plates of Guérin's Iconographie du Regne Animal (Lepid.)..... 378
Blaisdell—Studies in the Tenebrionid Tribe Eleodiini. No. 4 (Coleop.). 380
Schaus—A New Agrias from Guatemala (Nymphalidae, Lep.) 387
McAtee—Vaporous Discharge by Anisomorpha buprestoides (Orthoptera: Phasmidae..... 388
Editorial—Rules and Suggestions for our Contributors..... 389
Parshley—Bibliography of the North American Hemiptera in Preparation..... 391
Entomological Collections of the late W. H. Harrington..... 391
A New List of Coleoptera of N. Amer. 392
Huguenin—Early appearance of Lycaena antiacis and xerxes (Lepid.) in 1917..... 392
The Annual Meetings of Societies in Convocation Week..... 393
Entomological Literature..... 394
Review of Bequaert: A Revision of the Vespidae of the Belgian Congo.... 397
Obituary—John W. Bradley, Vernon King, David Ernest Lantz, Frederick Knab, V. A. E. Daecke and Stuart C. Vinal..... 400

Miscellaneous Studies in the Family Aphididae (Hem., Hom.).[1]

By ALBERT F. SWAIN, University of California, Citrus Experiment Station, Riverside, California.

During the writer's study of the California *Aphididae* several questions relating to the identity and synonymy of various genera and species have arisen. A few of these questions are discussed and the writer's conclusions given herewith.

There is always present the question as to the proper limitations of genera, which oftentimes is difficult to decide. As a general rule, the writer does not believe in the formation of a vast number of genera on slight structural differences. However, there are included in some genera species of such widely different characters that, although a specific determination may

[1] Paper No. 50—University of California, Graduate School of Tropical Agriculture and Citrus Experiment Station, Riverside, California.

be readily accomplished, a generic determination is quite difficult. The genus *Aphis* Linn., as understood by American aphidologists, is an example of this. *Macrosiphum* Passerini is another. Occasionally one finds a species that does not fit into any genus, or that will fall into any one of a number of genera, according to which table is used for the determination. It is far simpler, and in the writer's opinion better, in such a case, to describe a new genus for that species.

I. The Genus Macrosiphoniella Del Guercio.

In 1911 Del Guercio[2] described the genus *Macrosiphoniella*, designating as the type species, *Macrosiphum atrum* (Ferr.). The following species he also placed in this genus: *Siphonophora absinthii* Koch, *Siphonophora artemisiae* Pass.[3] (*tanacetaria* Koch), *Aphis campanulae* Kalt., *Macrosiphoniella chrysanthemi* Del Guer., *Siphonophora linariae* Koch, *S. lutea* Buckton, *Aphis millefolii* Fabr., *A. solani* Walker and *A. viciae* Kalt.

This genus is quite similar to *Macrosiphum* Pass., except that the cornicles are not considerably longer than the cauda; in fact they are oftentimes shorter. Del Guercio separates it from *Macrosiphum* Pass. and *Megoura* Buckt. by the following key:

"Sifoni corti presso a poco della lunghezza della codetta:
"Sifoni distentamente clavati..*Megoura* Buckton.
"Sifoni cilindrici, piu o meno allargati, talvolta, all base.....*Macrosiphoniella* Del Guer.

[2] Del Guercio, A. Redia 7: 331-333. 1911.

[3] Theobald (Jour. Econ. Biol., 8: 71. 1913.) credits this species to Boyer de Fonscolombe, and from his description it would certainly fit into this genus. Wilson (Trans. Amer. Ent. Soc., 41·97. 1915) describes a species from *Artemisia* in Oregon under this name. He places *S. frigidae* Oestlund as a synonym. It is probable that he had Oestlund's species, but he could not have had this one, for in his material the cornicles were fully twice as long as the cauda. The measurements were: cornicles 0.73 mm., cauda 0.30 mm. (alate); cornicles 0.52 mm., cauda 0.27 mm. (aptera). Therefore *Siphonophora frigidae* Oestlund is distinct and belongs to the genus *Macrosiphum* Pass., while *S. artemisiae* Fonsc. belongs to the genus *Macrosiphoniella* Del Guer. The latter species has, to date, never been reported from America.

"Sifoni lunghi o lunghissimi, sempre molto piu lunghi della codetta..*Macrosiphum* Passerini."

The species in this genus have heretofore been considered as belonging to *Macrosiphum,* but the writer is in full accord with Del Guercio in placing them in a distinct genus.

The question was brought to the writer's attention on taking specimens of *M. sanbornii* Gillette on chrysanthemums at Stanford University and in Riverside. This species cannot very well be placed in the genus *Macrosiphum* because of the short bottle-shaped cornicles which are not longer than the cauda (Text fig. 1). It does fit the genus *Macrosiphoniella* of Del Guercio, however.

Van der Goot[4] adds another species, *M. citricola* v.d.G., to this genus, making a total of twelve species. Of these, ten occur in Europe, two in Australasia, and one in America.

II. The Genus Siphonatrophia nov. gen.

The writer has recently described an aphid from Monterey and Guadalupe cypress under the name of *Cerosipha cupressi* Swain.[5] At that time he was doubtful as to its generic position, so placed it provisionally in *Cerosipha.* Since then he has had opportunity to study it further and has come to the conclusion that it does not fit into any described genus. Consequently he proposes a new genus for the species, naming it *Siphonatrophia* (from its atrophied cornicles). Below is a brief description of the genus.

Body of alate small and of the shape of *Aphis,* but the body of the apterae with a very swollen and convex abdomen. Forehead flat and without frontal protuberance. Antennae short, scarcely reaching to the abdomen, five-segmented, and without antennal tubercles. Segments three and five subequal, and the base and spur of five subequal. Body without lateral tubercles

[4] Van der Goot, P. Zur Kenntniss der Blattläuse Java's. Contrib. à la Fauna des Indes Néerlandaises, 1: 34. 1917.

[5] Swain, A. F. New *Aphididae* from California. Trans. Amer. Ent. Soc. 44: 19-22. 1918.

on prothorax or abdomen. Legs normal in alates, but short and stout in apterae. Cornicles merely pores, with the opening broader than long, slightly flanged near the mouth. Cauda of alates long and ensiform or triangular, of apterae short and conical. Anal plate distinct and fairly conspicuous, broadly rounded. Rudimentary gonapophyses two. Wings long and slender, being much longer than the body, and with an *Aphis*-like venation, in which the second branch of the third discoidal is nearer to the tip of the wing than to the base of the first branch.

Type: Cerosipha cupressi Swain, on *Cupressus guadalupensis* and *C. macrocarpa,* Riverside and San Diego counties, California. This species lives singly on the tips of the leaves of cypress. The alates are very rare, which facts seems to indicate an alternation of host plants. The alternate host, if any, is unknown.

This genus is somewhat similar to *Sipha* Passerini and to *Cerosipha* Del Guercio, especially in the five-segmented antennae and the aphidine venation. In *Cerosipha* Del Guercio the cornicles are longer, while in *Sipha* Passerini the cauda is knobbed and the body flat and covered with long fine hairs. In venation it resembles *Aphis padi* Linn. and *Aphis prunifoliae* Fitch. The cauda reminds one of *Siphocoryne* Passerini or *Myzus* Passerini. In Wilson's keys to the *Aphidini*[6], this falls into either *Brachycolus* Buckton or *Cryptosiphum* Buckton. From both it differs in the five-segmented antennae. The short pore-like cornicles and the shape of the body separate it from the former, and the shape of the cauda from the latter. From *Setaphis* v.d.G.[7], which it resembles somewhat superficially, it differs in lacking the "Siphunculoidae" and in the typical *Aphis* venation with the twice-branched cubital vein.

1. Cornicles cylindrical and as broad as long. Body slender..... *Brachycolus* Buckton. Type: *Aphis stellariae* Hardy.

[6] Wilson, H. F. A key to the genera of the subfamily *Aphidinae* and notes on synonomy. Annals Ent. Soc. Amer., 3: 321-322. 1910.

[7] Van der Goot, P. Zur Kenntniss der Blattläuse Java's. Contrib. Fauna des Indes Néerlandaises, 1: 153. 1917.

Cornicles barely distinguishable, being only small pores. Body oval and distended, particularly in the apterae.....2

2. Antennae five-segmented. Cauda of alates long and ensiform, and of apterae short and conical, but well developed.....

Siphonatrophia nov. gen. Type: *Cerosipha cupressi* Swain.

Antennae six-segmented. Cauda short and tapering and not developed in the apterae.....

Cryptosiphum Buckton. Type: *C. artemisiae* Buckton.

III. The Genus Monellia Oestlund.

In 1887 Oestlund[8] described the genus *Monellia* with *Aphis caryella* Fitch as the type. He separated this genus from *Callipterus* Koch by the position of the wings when at rest. In the latter they are held roof-like as is typical in the *Aphididae,* while in the former they are horizontal, that is, laid flat on the abdomen. Following is Oestlund's description of the genus:

Antennae longer than the body, on no frontal tubercles. Eyes pale red; ocelli present. Beak very short. Thorax low and flat; prothorax nearly as large as thorax proper. Wings held horizontal in repose; venation as in *Callipterus.* Honey-tubes not obvious. Style short, enlarged at apex.

As just stated, *Aphis caryella* Fitch was designated as the type. In this species the wings are said to lie horizontal when the insect is at rest. Many times in California there has been taken on walnut a species which has been considered as *caryella* Fitch. Careful comparisons with mounted specimens from Indiana show no structural differences, so that there can be no doubt that they are identical. However, the species in California does not have the habit of holding the wings horizontal when at rest. It would seem, therefore, that this habit is variable.

Many of the American aphidologists have considered *Callipterus caryae* Monell as belonging to this genus. Here is another species that does not have this habit, at least in California. Specimens from California agree perfectly with specimens in the writer's collection from Pennsylvania. The writer has been

[8] Oestlund, O. W. Synopsis of the *Aphididae* of Minnesota. Bull. Minn. Geol. and Nat. Hist. Survey, 4:44. 1887.

unable to find any authentic record as to the wing position in this species.[9]

In *Monellia californicus* Essig, the wings are not held horizontal. The one other species in this genus, *M. costalis* (Fitch) is unknown to the writer, and in Baker's[10] description no statement is made concerning this point.

Inasmuch as this character of wing position is variable in the type species, it cannot be considered of importance in separating genera. Furthermore it is the writer's opinion that a character, such as this, which cannot be used in the determination of mounted specimens, should not be considered. A large part of the systematist's study must necessarily be with museum specimens, and such a character cannot be of any use then. Therefore, the retaining of this genus does not seem justifiable.

Practically all of the species considered by the earlier American aphidologists as belonging to *Callipterus* Koch have been transferred to *Myzocallis* Passerini. In this latter genus are those species with the antennae set on more or less distinct antennal tubercles and with the cornicles, although small, distinct and almost as long as, or longer than, wide. This leaves, therefore, in *Callipterus* Koch only those species without antennal tubercles and with pore-like cornicles. Here, then, belong the four species of *Monellia* Oestlund.

Baker[11] gives a key to these American species. All four have as their hosts, species of either *Carya* or *Juglans,* or of both. *C. californicus* (Essig) is known to occur only in California, and *C. costalis* (Fitch) in New York and Connecticut. The other two species, *C. caryae* Monell and *C. caryella* (Fitch), are found throughout the north and middle Atlantic, the middle western, and the Pacific Coast States. In the west they are of rare occurrence, however.

[9] Essig (Pom. Jour. Ent., 4: 771. 1912) in comparing his species, *californicus,* with Thomas's description of *caryae* Monell states that in the latter the wings are held horizontal. Thomas's note is not accessible to the writer, however.

[10] Baker, A. C. Eastern Aphids, new or little known. Part II. Jour. Econ. Ent., 10: 424. 1917.

[11] Baker, A. C. *Op. cit.*

IV. A New Species of the Genus Thripsaphis Gillette.[12]

In October, 1917, specimens of a species of *Thripsaphis* were received by the writer from Mr. G. F. Ferris of Leland Stanford Junior University. These had been found on the leaves of *Carex* sp. near San Francisquito Creek, Santa Clara County, California. Not being able to identify them with any known species, the writer herewith describes them as a new species,

Thripsaphis caricicola nov. sp. (Text figs. 2-6).

Cotype specimens are in the writer's private collection in Riverside, and in the U. S. National Museum, Washington, D. C.

Locality: Santa Clara County, California. Collector: A. P. Batchelder. Date: October 26, 1917. Host: *Carex* sp.

Alate viviparous female.—General body color yellow and dusky black. Head yellow with margins dusky. Antennae dusky to black, except base of segment three, which is pale. Eyes reddish brown. Beak yellow with tip black. Prothorax dusky with median yellow stripe. Thoracic plates black. Legs yellowish with tarsi and tips of tibiae and of femora black. Abdomen yellow with four rows of darker spots, two lateral and two sublateral. Cauda and anal plate dusky.

Body rather long and narrow, resembling somewhat that of a thrips. Head about two-thirds as long as wide between the eyes. Front with a prominent semiquadrangular protuberance (fig. 2), which is about as wide as long, and as large as the first antennal segment. Antennae (fig. 4) about three-fourths as long as the body. No antennal tubercles. Segment III the longest, being but slightly shorter than IV and V, or V and VI combined. V about five-sixths as long as IV, which in turn is slightly shorter than VI. VI base and spur equal. The usual primary sensoria on V and VI and accessory sensoria on VI. Secondary sensoria only on III, being circular, equal-sized, and placed in a more or less straight row on the basal three-fourths of the segment; 11 to 12 in number. Beak short scarcely reaching first coxae. No lateral tubercles on the prothorax or abdomen. Cornicles (fig. 5) merely pores, which are about one-sixth as wide at the mouth as the length of the hind tarsi. Cauda (fig. 5) distinct, knobbed, about two-thirds as long as hind tarsi. Anal plate (fig. 5) large, prominent, deeply bilobed. Legs long and slender, normal throughout. Wings (fig. 6)

[12] Gillette, C. P. Two new Aphis genera and some new species. Can. Ent., 49: 193-196. 1917.

long and slender, venation regular, the third discoidal of the fore wing being twice branched, and two distinct oblique veins being present on the hind wing. The second branch of the third discoidal of the fore wing is nearer to the tip of the wing than to the base of the first branch.

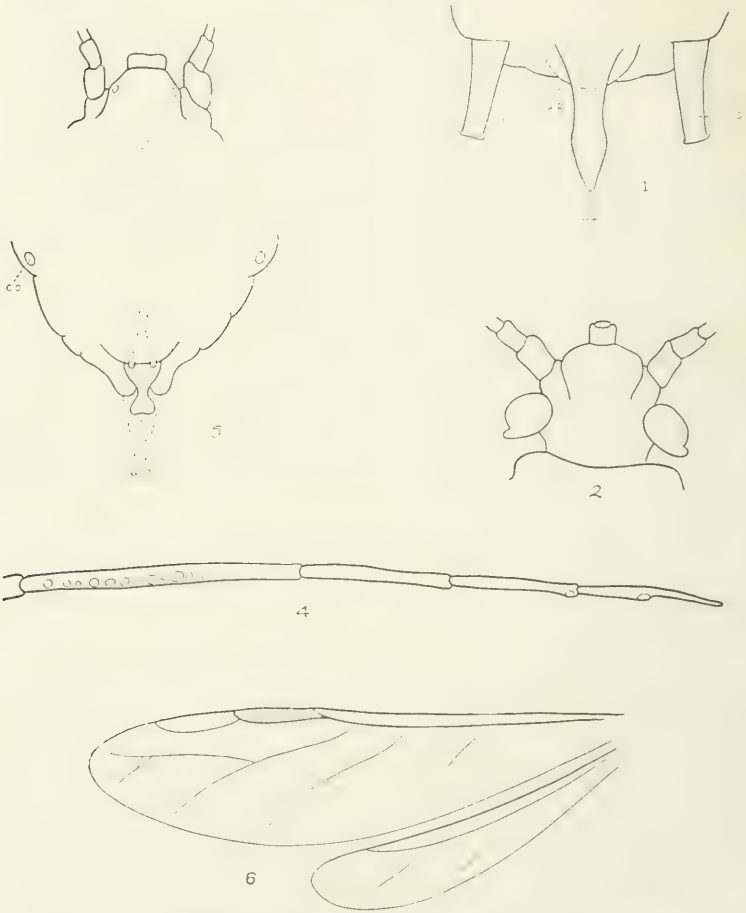

Fig. 1.—*Macrosiphoniella sanborni* (Gillette). Caudal end of abdomen.

Figs. 2-6.—*Thripsaphis caricicola* nov. sp. Fig. 2.—Head, alate. Fig. 3.—Head, aptera. Fig. 4.—Antenna, alate. Fig. 5.—Caudal end of abdomen, alate. Fig. 6.—Wings, alate.

Ca., cauda; *co.*, cornicle; *a. p.*, anal plate: *r. g.*, rudimentary gonapophyses.

All drawings were made with the camera lucida, and all except fig. 6, with the 25 mm. ocular and 16 mm. objective. Fig. 6. was made with the same ocular, but with the lower lens of the 16 mm. objective removed.

Measurements: Body, length (including both cauda and frontal protuberance) 2.11 mm., width of thorax 0.609 mm.; antennae, total 1.79-1.81; III, 0.609-0.646 mm.; IV, 0.340-0.357 mm.; V, 0.297-0.306 mm.; VI, base, 0.174-0.187 mm.; VI, spur, 0.174-0.187 mm.; cornicles, width at mouth, 0.025-0.032 mm.; cauda, 0.119 mm.; hind tarsi, 0.170-0.187 mm.; wing, length, 2.77-2.86 mm.; width, 0.799 mm.; expansion, 6.14 mm.; third discoidal from base of first branch to tip of wing, 0.837 mm.; from base of second branch to tip of wing, 0.242 mm.

Apterous viviparous female.—General color of body yellow. Eyes reddish brown. Antennae with segments I, II and III (except extreme tip) light straw-colored; IV, V, VI (except spur) and tip of III black. VI spur dusky but somewhat lighter than base. Legs with tarsi and joints black, remainder lighter.

Structural characters as in alates, except no secondary sensoria.

Measurements: Body, length (including both cauda and frontal protuberance) 2.04-2.28 mm.; width of thorax, 0.51-0.54 mm.; antennae, total 1.22-1.62 mm.; III, 0.408-0.553 mm.; IV, 0.221-0.306 mm.; V, 0.204-0.272 mm.; VI, base, 0.136-0.170 mm.; VI, spur, 0.136-0.170 mm.; cornicles, width at mouth, 0.032-0.035 mm.; cauda, 0.085-0.119 mm.; hind tarsi, 0.153-0.170 mm.

This species seems typical of the genus except for the fact that both oblique veins of the hind wings are distinct. However, as Gillette[13] states, "the presence or absence of the vein should not be given generic importance." From the figures of *T. verrucosa* Gillette, the species seems very closely related to the one described here. As only apterous oviparous females of that species were described, it cannot now be determined whether or not they are synonymous.

A Gynandromorph of Callosamia angulifera and Melitaea phaeton aber. streckeri (Lep.).

Doris M. Armstrong, of Brockett Point, Branford, Connecticut, has sent me for examination two very interesting specimens. One is a perfect gynandromorph of *Callosamia angulifera*. The wings of the left side are of the dark color of the male and the antenna of this side is male. The wings and antenna of the right side are female in color and character. The specimen was a captured one.

Perfect examples of gynandromorphism are evidently of rare occurrence and they are more interesting when the sexes of the species are so different in appearance.

The other example is an aberrant specimen of *Melitaea phaeton* Drury, and is very similar to the form described by Ellsworth in Ent. News 1902, XIII, 104, under the name *streckeri*. Ab. *streckeri* was taken at Vestal, New York.—Henry Skinner.

[13] Gillette, C. P. *Op. cit.*, p. 194.

An Annotated List of Gainesville, Florida, Coleoptera.

By H. L. Dozier, University of Florida.

(Continued from page 335)

CHRYSOMELIDAE.

Lema brunnicollis Lec. A specimen taken in live oak hammock, Aug. 20 (J. R. W.). Abundant on low oak bushes and weeds in open field, April 11-15.

Lema trilineata Oliv. Adults and larvae of all stages were abundant feeding on a solanaceous weed, the ground cherry, in open field, April 11-15.

Lema 6-punctata Oliv. One taken sweeping weeds at hammock edge, May 4.

Lema conjuncta Lec. Taken in flight along road through hammock, May 1. A specimen swept from oak foliage, April 1.

Lema solani Fabr. Numerous at Hogtown Creek, April 9, eating the foliage of a solanaceous weed. March 14-April 9.

Anomoea laticlavia Forst. This species has been taken feeding on pine foliage, June 8, and on weed at Hogtown Creek, April 9. A specimen swept from oak, April 3.

Coscinoptera dominicana Fabr. Beaten from oak foliage, April 18.

Chlamys plicata Fabr. Numbers of this queer-looking beetle were taken on chinquepin blooms, evidently eating the pollen, May 20.

Exema gibber Oliv. Taken in the hammocks, April 2.

Bassareus congestus Fabr. Beaten from oak foliage, July 5-24.

Cryptocephalus 4-maculatus var. **flavipennis** Hald. Beaten from wild cherry in bloom on road to Hogtown Creek, March 9. Taken also on oak and wild buckeye foliage, April 3-18.

Cryptocephalus guttulatus Oliv. Taken on weed at Hogtown Creek, April 9. Beaten from oak foliage, April 3.

Cryptocephalus obsoletus Germ. A specimen taken sweeping grass and low herbage in flatwoods, Oct. 29.

Cryptocephalus badius Suffr. A number of specimens taken on linden, July 12-14.

Griburius larvatus Newm. An undated specimen.

Monachus auritus Hald. On oak foliage, April 4.

Monachus thoracicus Cr. Large numbers of this little bronze chrysomelid were taken at wild plum blossoms, Feb. 18-20. Abundant at cherry laurel blooms, March 1, and at wild cherry blooms, March 7-9.

Typophorus viridicyaneus Crotch. One taken eating sweet potato foliage, Aug. 18.

Typophorus canellus Fabr. Beaten from wild grape.

Metachroma marginalis Cr. Beating oak foliage, April 3.

Lina scripta Fabr. Larvae taken on Carolina poplar, Aug. 20. An adult at light, April 20.

Colaspis brunnea Fabr. A number on sweet potato foliage, Aug. 31. On cowpeas, June 15 (R. N. Wilson).

Colaspis favosa Say. A specimen at light, June 9. This species is of considerable economic importance, feeding on eucalyptus and grape foliage.

Ceratoma trifurcata Forst. Taken in abundance on cowpeas (R. N. Wilson).

Trirhabda brevicollis Lec. This beetle makes its appearance every year about the first of April, having only one brood a year. Some years it completely defoliates all the prickly ash. The first larvae of the season have been taken April 1. The pupal stage lasts only a few days.

Galerucella notulata Fabr. Taken on ragweed (*Ambrosia*), July 6.

Diabrotica 12-punctata Fabr. Taken abundantly on a number of plants.

Oedionychis 6-maculata Ill. Abundant on foliage of ash, together with *O. scalaris*, April 5. Extremely quick in its movements.

Oedionychis scalaris Melsh. Taken on ash, but not as abundant as the above species, April 5-6.

Oedionychis fimbriata Forst. Beaten from oak foliage, April 18.

Disonycha glabrata Fabr. Abundant on bull thistle while in bloom, April 20. Large numbers riddling the foliage of pigweed (*Amaranthus*), May 15. A few taken on corn plants, Aug. 16.

Disonycha triangularis Say. Taken by sweeping low foliage—moist hammock edge, April 15. Taken hibernating under old log (C. Nieland).

Disonycha abbreviata Melsh. Several taken sweeping low herbage, Feb. 26 and April 4.

Phyllotreta picta Say. Very abundant on young oak foliage, March 10-April 2.

Haltica chalybea Ill. This species winters over in the hammocks in Spanish moss. An adult was taken at wild plum blossom as early as Feb. 18, and by the 27th large numbers were beginning to work on wild grape foliage. Hundreds were swarming everywhere, May 5.

Haltica ignita Ill. An unusual swarm of this flea-beetle occurred at lights, April 27. Crepe myrtle seems to be a favorite food plant, as this plant is simply riddled at times.

Haltica marevagans Horn. The wild *Oenothera* is the favorite food plant of this species. They made their appearance about April

26th and simply riddled this plant. After this plant was gone, they went to *Jussieua*. Abundant, April 26-Sept. 12.

Blepharida rhois Forst. Adults and larvae were very abundant on young sumac, April 11-15. Larvae were also abundant, Sept. 29, so that there must be a number of broods per year.

Chaetocnema confinis Cr. Occurs in abundance in the hammocks on the foliage of basswood, wild cherry, buckeye, and various other trees and shrubs, March 3-April.

Chaetocnema pulicaria Melsh. Taken on corn (R. N. Wilson).

Psylliodes elegans Horn. Taken on oats, April 15 (R. N. Wilson). Abundant by sweeping grass and low vegetation in open field, April 1-3.

Octotoma plicatula Fabr. The first adult of the season was taken on buckeye leaf, March 6. The ash is their first choice as a food plant, and by March 25 large numbers are at work on this plant. They are to be found for only a few weeks and then disappear. As far as I have observed, they have only a single brood a year.

Chalepus bicolor Oliv. Several specimens taken sweeping low foliage at hammock edge, April 1.

Chalepus rubra Weber. Several have been taken between leaf-tyer's old nests in the hammocks on oak from Jan. 25-March 2. They begin to get abundant on linden, the foliage of which they eat, by the middle of March. As with *O. plicatula*, they are present for only a few weeks and then disappear. A specimen was taken on oak, May 1, and a pair in copula on linden, June 11.

Chalepus notatus Oliv. A few were taken on blackberry, *Ostrya* and oak, April 4-5.

Metriona (Coptocycla) purpurata Boh. This species has been taken on buckeye, oak and wild morning-glory vines, March 15-May 15. It is rather uncommon and its favorite food plant is *Ipomoea*.

Deloyala (Coptocycla) clavata Fabr. A specimen of this rough-backed cassid was taken on a weed at Hogtown Creek, April 9. Several taken on oak foliage, Dec. 2-3. This is more of a northern insect, and this record extends the distribution of the species for a considerable distance south of its usual range.

Chirida (Coptocycla) guttata Oliv. Occurs on wild sweet potato vines. A specimen was taken on wild mustard foliage. April 20-Aug. 12.

Coptocycla bicolor Fabr. An abundant species occurring on the foliage of *Ipomoea* and oak the year round, Dec. 4-Aug. 12.

Porphyraspis cyanea Say. This species is found only on saw-palmetto, Jan. 1-Oct. 28.

Chelymorpha argus Licht. A specimen was taken in crevice of old log at hammock edge, Feb. 18 (C. Nieland).

TENEBRIONIDAE.

Nyctobates barbata Knoch. Found beneath loose bark of decaying tree trunks. It is typical of this habitat. Oct. 20.

Epitragus tomentosus Lec. Taken beating oak. Extremely common the year round.

Polypleurus nitidus Lec. Very common under old logs and boards on the forest floor in both piny woods and at hammock margin. Simulates death when disturbed. Jan. 14-Feb. 3.

Polypleurus geminatus Sol. Less common than the above species, but is typical of the same habitat. Jan. 14-Feb. 3.

Uloma impressa Melsh. Large numbers beneath bark of fallen pine log, Nov. 19.

Uloma punctulata Lec. Taken with *U. impressa* in abundance, Nov. 19.

Diaperis maculata var. **floridana** Blatch. Found occasionally beneath loose bark hibernating, April 27.

Boletotherus bifurcus Fabr. Found occasionally on shelf fungi in the hammocks.

Adelina lecontei Horn. Numbers taken beneath bark of oak limbs in pile, Feb. 4. Evidently not hibernating, as larvae presumably of this species were found working with them.

Helops cisteloides Germ. Scarce. Characteristic of rotten logs and stumps both in piny woods and hammock, Jan. 15-28.

CISTELIDAE.

Hymenorus obscurus Say. Taken on oak foliage, May 2.

OEDEMERIDAE.

Oxacis thoracica Fabr. Found abundantly on chinquepin during its entire blooming period, April 27-May 24.

MORDELLIDAE.

Tomoxia lineella Lec. A specimen taken beating oak, April 18.

ANTHICIDAE.

Notoxus calcaratus Horn. Frequent on the foliage of oak, hickory and other trees, April 29.

MELOIDAE.

Pyrota sinuata Oliv. One taken at lights, Sept. 19.

Nemognatha piezata Fabr. Very numerous at bull thistle blooms, May 26.

Epicauta marginata Fabr. Taken on wild *Gerardia* plant, Aug. 31.

Epicauta strigosa Gyll. Abundant at blooms of a composite, Sept. 25.

RHIPIPHORIDAE.

Rhipiphorus octomaculatus Gerst. A specimen taken on okra plant, Aug. 7.

Rhipiphorus cruentus Germ. One taken at chinquepin bloom, April 26.

CURCULIONIDAE.

Attelabus analis Ill. The adults of this little reddish weevil made their appearance about March 20. On this date they were few in number, and their work on oak was just beginning. By March 27 the adults were numerous, and their work could be noticed everywhere.

Pterocolus ovatus Fabr. Several taken on oak foliage, April 13-15.

Tachygonus lecontei Gyll. Beaten from oak, prickly ash and holly, Dec. 4 and April 18.

Pandeleteius hilaris Hbst. Abundant on oak, in April.

Anthonomus rufipennis Lec. Numbers taken on hickory foliage, April 16. Active at night running over the foliage.

Prionomerus calceatus Say. Taken on oak foliage, April 5.

Centrinus albotectus Casey. Abundant in blooms of composites, dewberry, and *Crataegus*, March 1-May 15.

Craponius inaequalis Say. Taken on hickory foliage, April 2. Makes a squeaking noise when handled.

Conotrachelus anaglypticus Say. A specimen found on newly cut oak stump in hammock, March 8. Several beaten from buckeye at Hogtown Creek, March 5.

Eugnamptus striatus Lec. On young oak foliage, March 10.

Calandra oryzae Linn. This weevil is very abundant at chinquepin blooms, April 28-May 24.

Chalcodermus collaris Horn. A specimen taken on corn plant, Aug. 16.

Chalcodermus aeneus Boh. A serious pest of cowpeas, Aug. Taken eating tips of young oak shrubs, May.

Wollastonia quercicola Boh. Taken at light, May 9.

SCOLYTIDAE.

Ips calligraphus Germ. Found in large numbers with its galleries in the bark of fallen pine, Aug. 3. On this date the majority were just issuing from the pupal stage, but large numbers of fullgrown larvae and pupae were present.

Platypus compositus Say. Two females taken at light, Nov. 14.

Xylobiops basilaris Say. A specimen taken at light, Sept. 17. This species was reared from Japanese persimmon wood.

Xyleborus xylographus Say. A specimen taken at light, June 8.

A Note on Insects Found on Snow at High Elevations.

By L. O. Howard, U. S. Bureau of Entomology,
Washington, D. C.

The literature of this subject is very considerable in quantity and widely scattered. Some day, I hope, some one will bring it together. This note is simply a contribution to the subject.

Mr. Titus Ulke, of Washington, gave a lecture on this general topic before the Aquarium Society of Washington in the winter of 1916-17, in which he recorded observations which he had made in the Mount Rainier National Park; and Mr. F. E. Matthes, of the Geological Survey, in a bulletin published in 1914, makes additional contributions. Mr. Matthes' bulletin inspired several letters from different correspondents. Writing to him myself, he replied in some detail and referred me to Dean W. O. Cone, of the Cathedral of Saint John, Quincy, Illinois, who had written to him about certain observations which he had made some years ago, which interested me so much that I wrote to Dean Cone and received the following reply, which is of such interest that it should be published.

(Copy)

Cathedral of St. John,
Quincy, Illinois,
Feb. 1, 1918.

Mr. L. O. Howard,
Chief, Bureau of Entomology.

My dear Sir:

Your letter of Jan. 29 relative to my observations of Coreidae is at hand.

I am blessed with sharp eyes and a retentive memory, and am reasonably certain that the following account is accurate:

In company with Rev. Hudson Stuck, who afterward made the first ascent of Denali, or Mt. McKinley, and several others, I began the ascent of Sierra Blanca from the western side in Aug., 1904. This is a group of the Sangre de Cristo, and consists of several peaks, the highest of which is about 14,500 feet. We pitched our camp at extreme timber line, and made our explorations from there. About 13,000 feet

there is a crater lake, surrounded by talus, in which at that season were some small fields of snow, on the north side of the mountain crest, reaching down to the lake. A fine stream issued from this lake, and passed through other smaller lakes, some of which were filled completely with the debris of the mountain. The largest snow field was on the south shore of the crater lake and was reflected in the water like a giant spear-head. This extended up a rift in the wall of rock about 200 feet and continued along the water for perhaps twice that distance. There was no vegetation whatever around the lake, the snow and rock coming sharply to the water's edge. One portion of this snow field had a reddish tinge, which we took to be the effect of dust, the mountain walls being very red. As we came nearer this reddish tinge was overlaid by a very soft and unusual tint of green. We were looking then toward the sun, and I thought it was an optical effect, until we arrived at the edge of the lake. The snow then had lost its brightness, and looked very dirty. Scattered all over it were the torpid or dead bodies of the insects. A boy in the party called out, 'Look at the squash bugs!' I picked up and examined several specimens. They were the color of fresh spring leaves; had the flat thorax and wing-shields, with the small head and the sucking-tube of the Coreidae. I did not see any of them in motion, and concluded that they had been paralyzed or killed by the cold. The fourth member of our party to arrive said: 'Them's stink-bugs,' thus confirming my conclusion. He also declared that he had seen that species on the aspens at the foot of the mountain, but I had never observed them there. The specimens which I observed, several hundred, were fully developed, and capable of flight. I collected some, and intended giving them to the University of Colorado, but an accident which happened the same day took me away in great haste. I lost all my specimens, and never was able to return to that spot. Nothing relative to this expedition ever was published.

Enos Mills, a well-known writer on Rocky Mountain natural history, tells me that he has never encountered the Coreidae, but thinks they 'would most likely be found in the high-lands of Southern Colorado.' —William O. Cone.

So far as I know, there is no observation on record at all comparable to this one made by Dean Cone and his party. There can be little doubt as to the general position he has assigned to these creatures which occurred in such great numbers. Mr. A. N. Caudell, in his paper on insects found on Pikes Peak, read before the Entomological Society of Washington, February 13, 1902, records *Lygaeus turcicus* as "very

abundant." This seems to be the only recorded observation which at all parallels that of Dean Cone's party.

After all, there is really nothing very surprising about these observations. Almost any insect which flies strongly is apt to be carried up by currents of wind and deposited upon glaciers, and when these insects are unusually abundant such remarkable occurrences upon glaciers as reported by Dean Cone are likely to happen. As a matter of fact, in certain regions such carriage by upward currents of air may have an appreciable effect upon the temporary abundance of certain species at lower levels. In a recent paper, for example, Dr. W. M. Wheeler,* referring to the finding of dealated queens of *Liometopum apiculatum* Mayr at an elevation of 9,400 feet, concludes that these individuals "had been wafted to this altitude the previous summer, and had perished, probably from cold, while endeavoring to found new colonies." He further adds:

> These observations strengthen Forel's and my contention that in mountainous regions queen ants are often borne up by air-currents to elevations at which the physical conditions will not permit them to establish the species. It is very probable that this process continues year after year and that it may constitute an appreciable drain on certain ant populations at lower altitudes.

Change of Address.

The following change of address is requested: from E. D. Ball, State Entomologist, Madison, Wisconsin, to E. D. Ball, Department of Zoology and Entomology, Ames, Iowa.

Honors to Entomologists.

Dr. F. D. Godman, surviving founder and editor of the *Biologia Centrali-Americana,* has been awarded the gold medal of the Linnean Society of London, according to *The Entomologist,* which also states that Dr. Paul Marchal, President of the Entomological Society of France, was elected an Honorary Fellow of the Entomological Society of London on March 20, 1918. Prof. Auguste Lameere, of the University of Brussels, has been elected a foreign correspondent of the Institut de France (Academy of Sciences), according to the Bulletin of the Entomological Society of France (1918, page 181).

*"Notes on the Marriage Flights of Some Sonoran Ants," *Psyche,* Vol. XXIV, No. 6, pp. 177-180.

Dates of Issue of the Plates of Guérin's Iconographie du Regne Animal (Lepid.).

By J. McDUNNOUGH, Decatur, Illinois.

In 1909 (Ent. News, XX, 396) Mr. N. Banks had an interesting note regarding the dates of this publication in which he showed conclusively that the plates were published previously to the text and that, if a named figure be considered valid (a generally accepted principle nowadays, I believe), all such names should be credited with a date prior to 1838.

In connection with our Catalogue of North American Lepidoptera I have recently had occasion to go into the matter of the dates of the plates of this work relating to the Lepidoptera (Plates 76-91) more closely and find that in all probability they were all issued prior to 1832. Henderson's English Edition of Cuvier's Regne Animal contains what are obviously poor reproductions of all of Guérin's plates, our copy of the illustrations of this work bearing the date 1834. We have not a copy of Griffith's Animal Kingdom (1832) available, but it must at least contain reproductions of some if not all of Guérin's plates. Mr. Banks, to whom we wrote regarding these plates, has been kind enough to copy for us a note to the "Alphabetical List of Species of Insects figured" which reads as follows:—"Many of the species figured did not occur till after the supplementary observations on the order to which they belong were printed; as these therefore are not noticed in the work, a brief description of them is inserted in this list; descriptions are also inserted of all those published by M. Guérin, in his 'Iconographie du Regne Animal,' which have been copied in this work, no accounts of which have hitherto been published by M. Guérin." It is quite plain therefore that Guérin's plates were merely copied in Griffith's work and that Gray's descriptions incorporated in the List are antedated by Guérin's figures. Rothschild & Jordan note this fact with regard to *Chlaenogramma jasmincarum* (Pl. 84) in their Revision of the Sphingidae, p. 95, although *Smerinthus io*, figured on the same plate, is credited by them to Gray on page 331 for some reason that is not very obvious to me.

Plate 80 contains a figure of *Satyrus balder* which is referred to by Boisduval himself in the Icones, p. 189 under the new genus *Chionobas;* it has been shown by Scudder (Hist. Sketch, pp. 98 and 140) that this portion of the Icones was published probably late in 1832; the same plate contains a figure of a species called *Eumenia toxea* Godt. which Guérin in the text (page 489) notes is a misidentification, referring the species to *atala* Poey, a name published in April, 1832, presumably after Plate 80 had been issued.

Plate 81 contains *Polyommatus thoe* which is referred to in the text of Boisduval's Lep. Am. Sept., p. 125, this portion of the work having been issued in all probability late in 1833 (*vide* Scudder, Hist. Sketch).

In view of the above facts I believe therefore that these plates must be considered as having been published between 1829 and 1831; the new N. American species contained on them have been variously credited to Boisduval, Gray or Guérin, but, since it is the figure on Guérin's plate that holds the name, both Mr. Banks and myself are of the opinion that Guérin must be considered to be the author in all instances but one. This single exception is found on Plate 87, fig. 8, where the figure of a Limacodid larva is listed in Guérin's text as "Chen. de Lim. indéterminée" which is certainly no specific name; Griffith in his copy of Guérin's plate first latinizes this to *Limacodes indeterminus*, which name we presume will hold and should be credited to Griffith; that Gray had nothing to do with the name is shown by the fact that there is no text description of the insect.

I would further note that the description of *Limacodes strigata* imago in the text (p. 512) seems to refer to *Sisyrosea textula* H. S., but the larva on which the name is based is correctly referred by Dyar to *delphinii*. *Scricaria ranoceps* (Pl. 87, fig. 1) with habitat as N. America, according to the text, appears to have been omitted from all our catalogues; it is a *Datana* species, possibly *floridana* Graef, but an exact determination from the figure seems impossible. *Platypteryx glo-*

bulariae (Pl. 88, fig. 9) is also recorded in the text (p. 520) from N. America; the species looks like a Geometer, but I fail to recognize it and think that possibly the locality given may be erroneous; the figure is striking enough to make identification fairly easy.

In the light of the above remarks the following changes should be made in our Check List:

123 *balder* Guér. instead of *balder* Bdv.
328 virginiensis *Guér.* instead of virginiensis *Gray.*
404 thoe *Guér.* instead of thoe *Bdv.*
670 jasminearum *Guér.* instead of jasminearum *Bdv.*
709 *io* Guér. instead of *io* Gray.
1033 lecontei *Guér.* instead of lecontei *Bdv.*
3669 borealis *Guér.* instead of borealis *Bdv.*
4813 indetermina *Griff.* instead of indetermina *Bdv.*
4816 delphinii *Guér.* instead of delphinii *Bdv.*
strigata Guér. instead of *strigata* Bdv.
4889 sepulchralis *Guér.* instead of *sepulchralis* Bdv.
lugubris Guér. instead of lugubris *Bdv.*
6755 asilipennis *Guér.* instead of asilipennis *Bdv.*

Studies in the Tenebrionid Tribe Eleodiini. No. 4 (Coleop.).

By F. E. Blaisdell, Sr., M.D., San Francisco, California.

The status of a part of the races described in the present contribution has been in doubt for a long time. The opportunity of examining larger series than had previously been at hand is clearing up slowly many enigmas in the genus *Eleodes.*

Much credit is due Mr. Nunenmacher for his enthusiasm and persistency in exploring out of the way regions.

Eleodes (Blapylis) parvicollis var. **squalida** n. var.

Form oblong-oval to ovate, slightly more than twice as long as wide. Color deep black, elytra shining, head and pronotum duller in lustre.

Head a little less than one-half as wide as the pronotum, comparatively small, about as wide as long; finely punctate, punctures somewhat sparse centrally, denser laterally, with a small glabrous space at the epistomal base, that sometimes extends upon the epistoma; front slightly convex and not impressed. Antennae short, not quite extend-

ing to the pronotal base, almost slender, last three joints forming a feeble, parallel club; third joint not quite as long as the next two taken together, joints four to eight longer than wide and obconical, joints four to six increasing slightly in length, the fourth distinctly longer than the fifth, joints seven and eight subequal in length, ninth and tenth triangular, about as wide as long and slightly wider than the preceding joints, eleventh short oval, scarcely longer than wide.

Pronotum slightly transverse, a little more than one-third wider than long; sides evenly arcuate in anterior four-fifths, more strongly so just before the somewhat suddenly formed basal constriction at basal fifth, here the sides are straight and parallel; apex a little wider than the base and truncato-sinuate; apical angles obtuse and scarcely rounded; base quite truncate, and the angles distinctly rectangular; disk evenly convex from side to side, not strongly so, rather finely punctate, punctures evenly dispersed, separated by once or thrice their diameters, slightly denser and feebly asperate laterally.

Propleurae not rugose and sparsely punctate.

Elytra oval, slightly oblong, less than twice as long as wide; humeri distinct, narrowly rounded, and not in the least prominent; base truncate; sides more or less moderately arcuate; disk moderately convex, rather strongly rounded laterally, inflexed sides feebly arcuate, posteriorly arcuately declivous, punctures moderately coarse and strong, rather closely placed and more or less serial in arrangement, series rather closely placed, strial punctures scarcely coarser than those of the intervals and separated by about their own diameters, intervals sparsely punctate, all the punctures becoming more irregular and confused laterally, the strial series almost distinct to the lateral declivity; surface scarcely asperate, setae not visible.

Parapleura moderately coarsely and densely punctate.

Sterna rather densely and not coarsely punctate. Prosternum not mucronate.

Abdomen shining and not coarsely nor densely sculptured, slightly rugulose.

Legs moderate in length and stoutness.

♂.—Oblong-oval, slightly narrowed anteriorly, sides of elytra less arcuate, body narrower; abdomen less convex and feebly oblique to the sterna. Protarsi with yellow pads on the first three joints, pads dense and convex on joints one and two, pad transverse and composed of straight golden spinules at apex of joint three; on the fourth joint the spinules are lateral and the plantar groove is open. Mesotarsi with a small pad at apex of first joint.

♀.—Ovate, elytra broader. Abdomen horizontal and more strongly convex. Tarsi without pubescent pads beneath.

Measurements.—♂, length 12.8 mm., width 5.5 mm. ♀, length 13.0 mm., width 6.0 mm.

Types: ♂ and ♀ in the author's collection. Collectors Blaisdell and Letcher.

Type locality and habitat: Davis' Meadow near Railroad Flat, Calaveras County, California. Elev. 1400 ft., June. A series of fifteen specimens.

Remarks: At first glance *squalida* resembles *cordata* in form and elytral sculpturing, except the serial arrangement; the pronotal punctuation is that of *parvicollis*. It is of interest to note that the pronotum is exactly of the same form and proportion in both sexes—equally arcuate and equally constricted at base.

Squalida is one of the many interesting geographical races of *parvicollis*, and still more so when we consider that a race of *cordata* inhabits the same region and presents analogous variations of sculpturing—namely *horrida*, described below.

The environment is a small meadow surrounded by pines (*Pinus ponderosa* Dougl.) with white oaks (*Quercus lobata* Nee.) in the open areas. The ground is more or less shaded and the usual mat of pine needles covers the ground among the pines, and in the open under the oaks, the oak leaves, dead branches and bark cover the ground. Since the series of *squalida* was collected, some twenty years ago, a fire has swept the region and greatly thinned out the pines. In this same spot *Omus blaisdelli* Casey was taken.

Eleodes (Blapylis) pimelioides var. **patruelis** n. var.

Moderately robust, ovate to ovate-oval, dull in lustre, and about twice as long as wide; prothorax more or less strongly constricted at base, densely punctate, intervals mere lines; elytra sculptured with small and more or less rounded granules or tubercles laterally, subasperately punctate each side of the suture; tubercles shining at summit, not reclinate or distinctly piliferous.

Head densely and somewhat coarsely punctate. Antennae somewhat shorter than in *pimelioides*, otherwise the same.

Pronotum widest at the middle, about one-third of the length wider than long; sides evenly arcuate in front of the middle and convergent, slightly subangulate at the middle, and thence obliquely and feebly arcuate to become sinuate at basal seventh, and then straight and parallel to the basal angles, the latter rectangular; base feebly arcuate; apex feebly emarginate with angles obtuse.

Elytra not broadly oval to suboblong, widest at the middle and about one-half wider than long; disk more or less evenly and feebly convex in the central area, broadly and strongly convex laterally, and more or less vertically declivous posteriorly; surface sculpturing without any evidence of order, intervals between the tubercles not rugose, laterally the tubercles are feebly asperate and the setae minute. Otherwise as in *pimelioides*.

♂.—Narrower and oblong-ovate. Abdomen feebly convex, first segment somewhat impressed at middle; feebly oblique to the sterna. First two joints of the protarsi with darkish tufts of pubescence, the tuft of the first joint is truncate at tip, larger and more rounded than that of the second, here the tuft is apical and transverse; the third joint has a divided tuft and the plantar groove is distinct, the mesotarsi have a quite small, transverse, apical tuft on the first joint.

♀.—Broader and ovate. First joint of the protarsi rounded and thickened at tip beneath; second and third joints transversely thickened at tips.

Measurements.—Length, 10.0 (♂) to 11.5 (♀) mm.; width, 5.0 (♂) to 5.75 (♀) mm.

Types (♂ and ♀) in the collection of the California Academy of Sciences.

Type locality: Provo Canyon, Wasatch Mountains, Utah. Collector J. R. Slevin, May 21st, 1913. Number of specimens studied, 19.

Remarks: *Patruelis* is rather more robust than *pimelioides*, the sculpturing finer, the sides of the pronotum are more broadly rounded and the constriction is distinctly shorter.

Eleodes (Blapylis) cordata var. **horrida** n. var.

Form as in *cordata*. Deep black, polished and shining. Head sculptured as in *cordata*. Pronotal disk coarsely, very densely, deeply and more or less confluently punctate; intervals mere convex lines.

Elytra very coarsely, densely and rugosely muricato-tuberculate throughout, with longitudinal series of punctures that are more or less distinct.

♂.—Narrower than in typical *cordata*.

♀.—Elytra less broadly oval.

Measurements.—♂, length, 10.5 mm.; width, 4.5 mm. ♀, length, 11.0 mm.; width, 5.7 mm.

Types: ♂ and ♀ in the author's collection. Collectors Blaisdell and Letcher.

Type locality and habitat: Davis' Meadow, near Railroad Flat, Calaveras County, California; elev. 1400 ft., June.

Remarks: *Horrida* is very coarsely sculptured and with longitudinal series of punctures on the elytra. The sculptural deviations from the typical form are analogous to those presented by *squalida*.

In the monograph (Bull. 63, U. S. Nat. Mus.) specimens from Calaveras County were referred to the typical form of *cordata*; the latter is found on the San Francisco peninsula, and in the Sacramento and San Joaquin Valleys, but not extending into the foot-hills of the western slope of the Sierra Nevada Mountains. In *horrida* the pronotum is different in the two sexes as in typical *cordata;* in *patruelis* the pronotum presents much less sexual differentiation and is almost similar in form in the two sexes.

Eleodes (Blapylis) inculta var. **affinis** n. var.

Form of *inculta*, from which it differs as follows: Males rather more elongate; pronotum narrower in both sexes, with the side margins distinctly and briefly sinuate before the basal angles, the latter slightly prominent. Elytral sculpturing rather more asperate, but not coarsely so.

In the male type the pronotum is about as wide as long, with the sides evenly arcuate and just the least sinuate before the subdentiform apical angles; tarsi as in *inculta*.

In the female the tarsal pubescence is somewhat heavier.

Measurements.—Length, 12.5 to 15.5 mm.; width, 5.7 to 8.6 mm.

Types: ♂ and ♀ in the collection of the California Academy of Sciences.

Type locality: Santa Cruz Island. Collector J. R. Slevin, April 13th, 1913. Number of specimens studied, 7.

Habitat: Santa Cruz and San Miguel Islands, off the coast of California, south of Santa Barbara.

Remarks: The series of *affinis* have been compared with twenty-six specimens of *inculta*, collected on the Island of San Miguel. These specimens of *inculta* are smaller than those previously studied from the Island of Santa Rosa (see p. 331, Bull. 63, U. S. Nat. Museum).

Eleodes vandykei Blais.

This should be graded as a distinct species, as it is evidently more closely related to *granulata* than to *letcheri*. A series

of thirty-two specimens has been collected in Klamath County, Oregon, by Mr. Nunenmacher. The specimens exhibit a tendency to develop elytral tubercles as in *granulata*. This is also the case in *parvula*, which should henceforth be recorded as a race of *vandykei*.

Specimens have recently been examined from Medicine Lake, Siskiyou County, California; they were collected on August 16th.

Eleodes hornii Blais.

Among specimens collected in Plumas and Eldorado Counties, California, by Mr. Nunenmacher, were nine examples of this rare and distinct species. These agree every way with the types as regards form, but present some variation in punctuation and size. One male, however, agrees perfectly with the type. In the other specimens the prothoracic and elytral punctuation is slightly coarser, denser and more irregular in distribution. In the types there is no evidence of a serial arrangement of the elytral punctures, in four of those collected by Mr. Nunenmacher there is. The largest male collected in Eldorado County has a length of 14.5 mm., and a width of 5.5 mm. The largest female and the one presenting the greatest amount of variation in sculpturing, has a length of 14.5 mm., and a width of 6.0 mm. In *hornii* the humeri are absent and the elytra evenly oval.

Eleodes hornii, var. **monticula** n. var.

Opaque, form as in *hornii*. Prothorax smaller and more finely punctured. Elytra more coarsely punctured, the punctures being somewhat eroded and at times sublineate in arrangement. The elytra are less evenly oval, being just a little more produced at apex and the latter more broadly rounded.

In the male the humeri are slightly evident.

Monticula is more convex than is typical *hornii*. In the monograph of the Eleodiini (Bull. 63, U. S. Nat. Mus.) the specimens now described were referred to *hornii* and collected at Mokelumne Hill, Calaveras County, California, elev. 1300 ft.

Type in the author's collection.

Type locality: Mokelumne Hill, Calaveras County, California.

Habitat: California (Calaveras County:—Mokelumne Hill, April. Shasta County:—Castella, July. Tulare County:—Cedar Creek, June; Rattlesnake Creek, July (Hopping's collection)).

Eleodes dentipes, var. **perpunctata** n. var.

Syn. *E. dentipes forma elongata punctata.*

Mr. Nunenmacher has quite recently collected an extensive series of *perpunctata* (60 specimens), in Tehama, Butte and Shasta Counties, California. The specimens are distinctly homomorphic and represent a valid geographical race. At the time that the Monograph of the Eleodiini was written, the specimens referred to the elongate punctate form of *dentipes,* came from several widely separated regions and were mixed with other races and forms.

There were no data to indicate that *perpunctata* was capable of reproducing its characteristics with any degree of stability, as has been proved by the above series. The *forma elongata laevis* of the Monograph now becomes the smooth elongate form of *perpunctata.*

In *perpunctata* the elytra are more or less minutely granulato-rugulose, more or less strongly punctate, with the punctures in series.

Type in the author's collection.

Type locality: Placerville, Eldorado County.

Habitat: California (Eldorado County:—Placerville. Tehama County, April. Trinity County:—Haybrook, April, (Hopping's collection). Contra Costa County:—Martinez. San Mateo County:—San Jose).

Eleodes gigantea Mann.

A series of specimens taken in northern California by Mr. Nunenmacher, answers to Mannerheim's description—"Elytra finely granulato-punctate," and proves that the typical form of *gigantea* is northern and not southern in habitat.

The pronotal disk is rather less sparsely but distinctly punctate.

The elytral surface is very finely rugulose, with punctures distinct and less than moderate in size, plainly serial; in each series the punctures are separated by a space equal to a little more than their own diameters; the intervals are narrow, with a single row of irregularly placed punctures; at the periphery the punctures are more irregular.

In size the specimens are as large as any collected in southern California. The females have the pronotal sides less arcuate, as a result the pronotal width is less.

Measurements.—♂, length, 22.0 to 33.5 mm.; width, 7.75 to 9.5 mm. ♀, length, 24.5 to 29.0 mm.; width, 10.0 to 13.0 mm.

Fifteen examples collected in Tehama County, California, April 27th, 1913.

Eleodes gigantea, var. **meridionalis** new var.

The form of *gigantea* occurring in southern and Lower California, and from as far north as the Santa Cruz Mountains, should be considered a geographical race, to which I give the name *meridionalis.* The chief distinguishing characters may be stated as follows:

Pronotal disk rather sparsely and feebly punctulate, sides more strongly arcuate in the female; elytral surface finely, irregularly and evenly punctate, rarely with closely placed series of punctures.

Types: ♂ and ♀ in the author's collection.

Type locality: San Diego, California.

Habitat: California (Kern and Santa Cruz Counties southward to northern Lower California).

A New Agrias from Guatemala (Nymphalidae, Lep.).

By W. Schaus, Washington, D. C.

In the supplement to the Rhopalocera of the *Biologia Centrali-Americana* reference is made on page 696, under *Agrias acdon,* to a letter from Senor Don Juan Rodriguez, who states that he has a male of this species captured in Vera Paz, Guatemala.

After the death of Don Juan, his sons kindly gave me this specimen in remembrance of their father, and on examination I find it is a female belonging to a new species which I take pleasure in naming after my late friend.

Agrias rodriguezi, new species.

Body fuscous. Fore wings: apex broadly, outer and inner margins narrowly black; a large crimson space at base, reaching nearly the middle of wing on costa, its outer edge oblique to vein 2 postmedially, then angled and inbent, followed by a broad blue shade from subcostal vein to submedian. Hind wings black with a large deep blue space, not extending above vein 6, leaving costal, inner margin and base broadly black, the outer margin narrowly so. Underneath the coloration is similar to the female of *Agrias aedon* given in the *Biologia* on Pl. 31, fig. 6. Female: expanse 83 mm.

Hab.: Vera Paz, Guatemala.

Type: A female in the Schaus Collection in the United States National Museum.

Vaporous discharge by Anisomorpha buprestoides. (Orthoptera: Phasmidae).

A review of information on the secretions of this phasmid and their ejection was published by Samuel H. Scudder in 1876 (Psyche, Vol. I, pp. 137-9). C. J. Maynard gives (Contr. to Science, Vol. I, 1889, pp. 31-35) a full account of the thoracic glands and their discharge. An interesting note on the subject will be found also under the name of H. M. Russell (Proc. Ent. Soc. Wash. Vol. XIV, No. 3, July-Sept., 1912, p. 117). Observations on the nature and source of the discharge by the insects vary; it is a milky fluid or a very fine mist; it is discharged from definite pores on the sides of the thorax or from some part of the abdomen. An observation differing somewhat from the previous accounts should be put on record, and the diversity of opinions should induce someone to make a thorough study of the matter and publish a full account. The observation to which I refer was made by Mr. C. H. M. Barrett, taxidermist of the United States Biological Survey, while on a collecting trip in Florida. At Miakka Lake, Manatee County, during a thunderstorm, June 19, 1918, Mr. Barrett found a number of pairs of *Anisomorpha buprestoides*, in copula, in the interstices of a pile of boards in a deserted cabin. When suddenly uncovered or otherwise disturbed, the insects discharged from the end of the abdomen vapor in the form of small puffs appearing two inches from the abdominal apex. The discharge in each case was immediately preceded by a crackling sound similar to that made by a small electric spark. Mr. Barrett's observation that *Anismorpha buprestoides* discharges a vapor from end of abdomen and that the discharge is preceded by a peculiar crepitation, differs, so far as I am aware, from any previously recorded.—W. L. McAtee, Biological Survey, U. S. Dept. Agriculture, Washington, D. C.

ENTOMOLOGICAL NEWS.

PHILADELPHIA, PA., DECEMBER, 1918.

Rules and Suggestions for Our Contributors.

The following letter was received from the Secretary-Treasurer of the Entomological Society of Washington in April, 1918:

The Executive Committee of the Entomological Society of Washington has recently adopted certain rules and suggestions governing articles published in the Proceedings of the Society. A copy of these rules and suggestions, which are to be published shortly in the first number of Volume XX of the Society's Proceedings, is enclosed.

In adopting these rules the Executive Committee passed the following resolution: first, that copies of these rules and suggestions be sent to other periodicals publishing articles on Entomology; second, that said copies be accompanied by a letter recommending the adoption (unless already in force) of these or similar rules and suggestions.

In the days when there are so many workers in Entomology and so much is written it is believed that there should be certain definite and understood policies which will tend to make it necessary for all authors to give in their papers certain definite information which is of great importance to contemporaneous and future workers and will assist in stabilizing our nomenclature. Rule 4 is one of the most necessary, especially when we consider that much of the indexing has to be done by persons with limited knowledge. Suggestion 6 is also of great importance and the subject it covers is most often considered of but little importance by those dealing with genereal biology, morphology, etc.

We trust that you will give this matter careful consideration, and hope that you will believe it desirable to adopt similar rules which will help to build our science on a firm foundation.

As the Rules referred to emanated from the Washington Society, the Editors of the NEWS considered it as a matter of courtesy that we should withhold comment upon them until their appearance in the Proceedings. The first number of Volume XX (for January, 1918) seems to have reached subscribers here on October 21; the first page contains the following:

RULES AND SUGGESTIONS GOVERNING PUBLICATION IN "PROCEEDINGS OF THE ENTOMOLOGICAL SOCIETY OF WASHINGTON."

Rule 1.—No description of a new genus, or subgenus, will be published unless there is cited as a genotype a species which is established in accordance with current practice of zoological nomenclature.

Rule 2.—In all cases a new genus, or subgenus, must be characterized and if it is based on an undescribed species the two must be characterized separately.

Rule 3.—No description of a species, subspecies, variety or form, will be published unless it is accompanied by a statement which includes the following information, where known: (1) the type-locality; (2) of what the type material consists—with statement of sex, full data on localities, dates, collectors, etc., and (3) present location of type material.

Rule 4.—No unsigned articles, or articles signed by pseudonyms or initials will be published.

Rule 5.—The ordinal position of the group treated in any paper must be clearly given in the title or in parentheses following the title.

Suggestion 1.—All illustrations accompanying an article should be mentioned in the text and preferably in places where the object illustrated is discussed.

Suggestion 2.—It is desirable in describing new genera and species that their taxonomic relationship be discussed, and that distinguishing characters be pointed out.

Suggestion 3.—In discussion of type material modern terms indicating its precise nature will be found useful. Examples of these terms are: type (or holotype), allotype, paratype, cotype, lectotype, neotype, etc.

Suggestion 4.—In all cases in the serial treatment of genera or species and where first used in general articles the authority for the species, or genus, should be given, and the name of the authority should not be abbreviated.

Suggestion 5.—Where the title of any publication referred to is not written in full, standard abbreviations should be used.

Suggestion 6.—When a species discussed has been determined by some one other than the author it is important that reference be made to the worker making the identification.

So far as the News is concerned, we have, we believe, observed most of these Rules and Suggestions for some years previous to the action of the Executive Committee at Washington, and not a few letters have been sent out from the Editor's office to our contributors asking for fuller informa-

tion, of the kind mentioned in Rule 3, to be incorporated in their articles. As some of these cases are of very recent date, we take this opportunity to call the attention of all those sending in manuscripts to the NEWS to the importance and necessity of observing this and the other rules and suggestions printed above.

In one respect only do we deviate from the Washingtonian formulae. We see no reason for discontinuing the Editors' prerogative of publishing unsigned editorials. In reply to a statement of our practice in this matter, the Secretary-Treasurer of the Washington Society wrote:

> While at the time the editorials are written, everyone who reads them is familiar with the initials or with the fact that the editor is responsible for them, years later, when conditions may have changed, these facts may be partly overlooked and the next generation may not be familiar with the initials. In other words, the point I am trying to make is merely this, that only the articles or editorials, which are signed by the name of the author will be of a permanent nature. I believe that by using the name of the author it will help to build science on a firmer foundation.

We shall not presume to say what weight should be attached to the editorials in the NEWS, but we still think they are better unsigned, even if speedy oblivion be the fate which is to overtake their authorship.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

Bibliography of the North American Hemiptera in Preparation.

As many of my correspondents know, I am engaged on a bibliography of the North American Hemiptera, designed to supplement Van Duzee's recent catalogue and undertaken at his suggestion. It will be much appreciated as an aid in making the work complete, if authors will communicate with me regarding their works on this subject, more especially those whose publications are few in number or have appeared in the proceedings of state Academies or local societies.—H. M. Parshley, Smith College, Northampton, Mass.

Entomological Collections of the late W. H. Harrington.

According to the *Canadian Entomologist* for September, 1918, the entomological collections of the late W. H. Harrington (whose death was recorded in the NEWS for October, page 320) have been acquired by the Entomological Branch of the Department of Agriculture, Ottawa, and will be incorporated in the Canadian National Collection of Insects there.

A New List of Coleoptera of North America.

As indicated elsewhere in this number of the NEWS, Mr. C. W. Leng, of New York, the well-known Coleopterist, has prepared a new list of the Coleoptera of North America, the publication of which will depend on the extent to which advance subscriptions shall be secured. As the list will be very useful, it is to be hoped that as many entomologists as possible will come to the aid of this praiseworthy undertaking.

Early Appearance of Lycaena antiacis and xerxes (Lepid.) in 1917.

Following my usual yearly custom, I collected early in 1917 on the western slope of Twin Peaks, San Francisco, California (altitude ranging from 200 to 800 feet). My observations were as follows:

February 5th—My first day out; white frost in A. M. No *Lycaena* to be seen, two *Colias* and one *Anosia plexippus* taken.

February 11th—White frost in A. M., weather bright but cold. No *Lycaena* to be seen, two *Colias* and one *Anosia plexippus* taken.

March 6th—White frost in A. M., weather fine. One *antiacis*, one *xerxes* and two *Anosia plexippus* taken.

March 11th—White frost in A. M., weather bright but cold. Two *Colias* and two *Euchloe* taken; no *Lycaena* to be seen.

March 15th—White frost in A. M. No *Lycaena* to be seen, two *Euchloe* and one *Colias* taken.

March 19th—White frost in A. M., weather fine. Two *L. antiacis* ♀ ♀, two *Euchloe ausonides*, two *Pieris rapae*, one *plexippus* and one *P. atalanta* taken.

March 22nd—White frost in A. M., high wind. One *Euchloe ausonides* and two *Lycaena acmon* taken. Four *Lycaena xerxes* or *antiacis* seen, but could not be captured on account of the high wind.

March 24th—White frost in A. M., weather warm. One *xerxes* ♀ taken, many *Pieris rapae* and *Anosia plexippus* seen, not taken.

March 27—Two *xerxes* ♂ ♀, one *antiacis* ♂, two *Thecla dumetorum* and one *Euchloe ausonides* taken.

April 5th—Weather hot. One *xerxes* ♂ and two *antiacis* ♀ ♂ taken; numerous *Colias, Pieris, plexippus* seen but not taken.

April 13th—Four *xerxes* 3 ♂ ♀, and five *antiacis* 3 ♂ 2 ♀ taken, also a *Lycaena* with white dot like a black center, just perceptible on close examination, which I cannot identify more closely, although it is either *antiacis* or *xerxes;* numerous *Colias* and *Melitaea* seen but not taken.

April 20th—Weather good, sun obscured. Three *xerxes* ♂, two *antiacis* ♀ ♂ taken. Many more could have been captured, but I preferred to observe their movements. Singling out an *antiacis*, I devoted 1½ hours watching it among the blue lupine bushes. It first deposited three eggs on a bud, each on a different section of the bud; it then flew to another lupine and deposited seven eggs scattered over four buds. The buds bearing the eggs were placed in a breeding cage,

but they all wilted down. The first *L. pheres* of the season were taken this date.

April 24th—Very foggy but warm. Two *antiacis* and one *xerxes* taken, also an aberrant specimen of *antiacis* with very large oval black dots.

April 26th—Three *antiacis*, one *xerxes*, one *L. acmon* and four *L. pheres* taken; the latter were just beginning to come out in numbers; several other specimens of *antiacis* and *xerxes* were seen but not captured.

May 1st—Cloudy and windy. Three *antiacis*, two *xerxes*, four *L. pheres* taken; several *xerxes* or *antiacis* and many *Melitaea* seen but not taken.

May 5th—A little cloudy but warm. One *xerxes*, one *antiacis*, and two fine specimens of *Thecla dumetorum* taken; *L. pheres* and *Melitaea* numerous, but did not take any.

May 11th—Weather warm. Did not see any *xerxes* or *antiacis* on this date. *L. pheres* and *Melitaea* in great numbers, but none were taken.

May 16th—Weather fine. Not a single *xerxes* or *antiacis* was seen. *L. pheres*, *Colias*, *Anosia plexippus* and *Melitaea* in abundance.

May 21st—*L. xerxes* and *antiacis* entirely absent. *Colias* in great numbers. *Melitaea* and *Anosia plexippus* plentiful. *L. pheres* in abundance on sand dunes.

From previous observations it would appear that *L. antiacis* and *L. xerxes* make their appearance in San Francisco about March 1st and disappear about the middle of May, I believe. I conclude my remarks respecting the *Lycaenae*, *xerxes* and *antiacis*, with an incident which, no doubt, will be of interest. In March, 1916, I noticed at the top of a lupine a pair of blue butterflies in copulation. I caught the two and kept them alive, and, to my great surprise, on reaching home, I discovered I had a *xerxes* and an *antiacis*. I placed both in a breeding cage, together with some lupine branches for food, but they remained untouched. The *xerxes*, a male, died in two days, and the female, an *antiacis*, died in five days. A *post-mortem* examination disclosed two well-formed eggs in the female, but they wilted down after one hour.

I have often stated that *xerxes* and *antiacis* are one and the same species, etc., etc.—J. C. Huguenin, San Francisco, California.

The Annual Meetings of Societies in Convocation Week.

The American Association for the Advancement of Science will hold its annual meeting in Baltimore on December 26 to 28, 1918. Owing to limited accommodations, due to war conditions, meetings of the Association and of its affiliated societies will be considerably reduced.

The Entomological Society of America will hold only a short business session on December 26, 27 or 28, according to circumstances.

The Association of Economic Entomologists will probably meet on one or more of the same days.

The American Society of Zoologists, in conjunction with Section F, A. A. A. S., will meet on December 26, 27 and 28; a conference with representatives of the United States Government Bureaus interested directly in Zoological problems, a joint meeting with the American Society of Naturalists and another with the Ecological Society of America are being arranged.

The American Society of Naturalists will hold a meeting on December 28 and its annual dinner on the evening of the same day, on which latter occasion Prof. Vernon L. Kellogg, of the Department of Entomology of Leland Stanford Junior University, is announced to talk on "The German Philosophy of War."

Entomological Literature.

COMPILED BY E. T. CRESSON, JR., AND J. A. G. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded.

The numbers in **Heavy-Faced Type** refer to the journals, as numbered in the following list, in which the papers are published.

All continued papers, with few exceptions, are recorded only at their first installments.

The records of papers containing new species are all grouped at the end of each Order of which they treat. Unless mentioned in the title, the number of the new species occurring north of Mexico is given at end of title, within brackets.

For records of Economic Literature, see the Experiment Station Record. Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

3—The American Naturalist, Philadelphia. **4**—The Canadian Entomologist, London, Canada. **5**—Psyche, Cambridge, Mass. **8**—The Entomologist's Monthly Magazine, London. **9**—The Entomologist, London. **11**—Annals and Magazine of Natural History, 9th series, London. **17**—Lepidoptera, Salem, Mass. **21**—The Entomologist's Record, London. **68**—Science, Lancaster, Pa. **72**—Transactions, Kansas Academy of Science, Topeka. **75**—Annual Report, Entomological Society of Ontario, Toronto. **81**—Biologisches Centralblatt, Leipzig. **89**—Zoologische Jahrbucher, Jena. **102**—Proceedings, Entomological Society of Washington, Washington, D. C. **118**—Memoirs and Proceedings, Manchester Literary and Philosophical Society, Manchester. **150**—Transactions, Royal Society of Edinburgh. **177**—Quarterly Journal of Microscopical Science, London. **179**—Journal of Economic Entomology, Concord, N. H. **189**—Journal of Entomology and Zoology, Claremont, Calif. **198**—Biological Bulletin, Marine Biological Laboratory, Woods Hole, Mass. **273**—Proceedings, Royal Society of Edinburgh. **420**—Insecutor Inscitiae Menstruus, Washington. **520**

—Proceedings, British Columbia Entomological Society, Victoria. **540**—The Lepidopterist, Salem, Mass.

GENERAL SUBJECT. **Cameron, A. E.**—Fossil insects, with special reference to those of the tertiary lake deposits of the Similkameen Valley, B. C. **520,** No. 10, 21-9. **Chandler, A. C.**—Animal parasites and human disease. (New York, John Wiley & Sons, 1918, 570 pp.) **Chapman, T. A.**—Racial and subspecific names. **21,** 1918, 168-70. **Crampton, G. C.**—Thoracic sclerites of immature pterygotan insects, with notes on the relationships indicated. **102,** xx, 39-65. **Cushman, B. A.**—A convenient method of handling large numbers of individuals in life-history studies of insects. **102,** xx, 112-14. **Cutler, D. W.**—Natural and artificial parthenogenesis in animals. **118,** lxii, No. 2. **Ely, C. R.**—Recent entomological chemistry and some notes concerning the food of insects. **102,** xx, 12-18. **Holland, W. J.**—Shall writers upon the biological sciences agree to ignore systematic papers published in the German language since 1914? **68,** xlviii, 469-71. **Lochhead, W.**—Few notes on the ecology of insects. **75,** 1918, 85-91. **Loeb, J.**—Forced movements, tropisms, and animal conduct. (Philadelphia, J. B. Lippincott Co., 209 pp., 1918.) **Lyle, C. T.**—An entomogenous fungus growing from the cocoon of a braconid. **9,** 1918, 227-9. **Tucker, E. T.**—Determinations and records of insects collected at Plano, Texas. **72,** xxviii, 291-312. **Wheeler, G.**—Varietal and aberrational nomenclature. A protest. **21,** 1918, 145-6.

PHYSIOLOGY AND EMBRYOLOGY. **Hoy, W. E.**—The chromosomes in embryos of Epilachna borealis and Diabrotica vittata. **198,** xxxv, 166-74.

MEDICAL. **Pierce, D. W.**—Medical entomology a vital factor in the prosecution of the war. **102,** xx, 91-104.

ARACHNIDA, ETC. **Emerton, J. H.**—Transcanadian spiders. **75,** 1918, 76-8. **Hutchinson, R. H.**—Note on the life cycle and fertility of the body louse (Pediculus corporis). **179,** xi, 404-6.

NEUROPTERA, ETC. **Cockle, J. W.**—Notes on the hybernation of some larvae and the movement of Boreus in the snow. **520,** No. 10, 14-15. **Muir, F.**—Notes on the Derbidae in the British Museum collection.—II, Derbinae. **8,** 1918, 228-240 (Cont.)

ORTHOPTERA. **Allard, H. A.**—Rhythmic synchronism in the chirping of certain crickets and locusts. **3,** lii, 548-52.

HEMIPTERA. **Baker, A. C.**—The identity of Aphis circezandis. **102,** xx, 130-1. **Barber, H. G.**—Synoptic keys to the Lygaeidae of the U. S. **5,** xxv, 71-88.

Baker, A. C.—Another [new] Toxoptera feeding on sedge (Aphididae). **5,** xxv, 88-93. **Barber, H. G.**—Genus Plinthisus in the U. S. [3 new]. **102,** xx, 108-11. **Ferris, G. F.**—Notes on Coccidae, II. [4 n. g., 1 n. sp.]. **4,** 1918, 323-32.

LEPIDOPTERA. Blackmore, E. H.—Notes on Geometridae new to British Columbia. **520,** No. 10, 16-20. **Chapman, T. A.**—The genus Hesperia. **21,** 1918, 145, 161-8 (cont.). **Corcoran, J. A.**—Some notodontian larvae. **75,** 1918, 47-9. **Downes, W.**—Notes on the L. of the northern Okanagan. **520,** No. 10, 11-13. **Durrant, J. H.**—Key to Hubner's system of classification exemplified by the complete family Alucitae of Hubner's "Verzeichniss," pp. 428-31, sp. 4177-4198. **21,** 1918, Aug.-Sept. issue. **Dyar, H. G.**—New moths from Mexico and Cuba. **420,** vi, 130-40. **French, C. H.**—Notes on Catocala julietta and C. muliercula. **17,** ii, 36. **Hiser, O. F. & J. S.**—Life history of Catocala nuptialis. **540,** ii, 66-9. **Huie, L. H.**—The formation of the germ-band in the egg of the holly tortrix moth, Eudemis naevana. **273,** xxxviii, 154-65. **Kopec, S.**—Lokalisationsversuche am zentralen nervensystem der raupen und falter. **89,** Abt. f. Zool., xxxvi, 453-502. **Reiff, W.**—Morpho cypris f. mirandus form. nov. **17,** ii, 58-9. **Wormsbacher, H.**—Collecting in Ohio during the spring of 1918. **17,** ii, 75-7.

Ehrmann, G. A.—New sps. and var. of butterflies [5]. Two new So. American Hesperidae. **17,** ii, 21-22, 29-30; 66. **Heinrich, C.**—A new genus of L. allied to Leucoptera. On the lepidopterous genus Opostega and its larval affinities. **102,** xx, 21-2; 27-38.

DIPTERA. Ballowe, H. L.—Breeding of mosquitoes in alkaline water. **5,** xxv, 96. **Dunn, L. H.**—A new mosquito from Colombia. **102,** xx, 128-30. **Dyar & Barret**—Descriptions of hitherto unknown larvae of Culex. **420,** vi, 119-20. **Dyar & Knab**—Bromelicolus Anopheles—A correction. **420,** vi, 140-1. **Mosier & Snyder**—Notes on gadflies in the Florida everglades. **102,** xx, 115-26. **Pause, J.**—Beitrage zur biologie und physiologie der larve von Chironomus gregarius. **89,** Abt. f. Zool, xxxvi, 339-452.

Aldrich, J. M.—New and little known Canadian Oscinidae [4 new]. **4,** 1918, 336-43. **Dyar, H. G.**—[Twelve] new American mosquitoes. Notes on American Anopheles. **420,** vi, 120-9; 141-51. **Greene, C. T.**—Three new sps. of D. **102,** xx, 69-71. **Malloch, J. R.**—Revision of the dipterous family Clusiodidae (Heteroneuridae). [1 new]. Genus Cnemedon in N. Am. (Syrphidae). [1 new]. **102,** xx, 2-8; 127-8. **Pettey, F. W.**—A new sp. of Sciara bred from red clover crowns. **179,** xi, 420. **Townsend, C. H. T.**—Some muscoid synonymy, with one new genus. **102,** xx, 19-21. New muscoid

genera, species and synonymy [12 n. g., 8 n. sps.]. **420,** vi, 151-56 (cont.).

COLEOPTERA. Becker, G. G.—Cannibalism in Euetheola rugiceps. **179,** xi, 431. **Champion, G. C.**—Notes on various species of the American genus Astylus, with descriptions of their sexual characters. **11,** ii, 337-67. **McGregor, E. A.**—A new plant host of the boll weevil. **102,** xx, 78-9. **Morris, F. J. A.**—A comedy of errors. **75,** 1918, 68-75. **Morse, F.**—Fireflies flashing in unison. **68,** xlviii, 418-19. **Myers, L.**—C. from the Claremont Laguna region. **189,** x, 43-53. **Pierce, W. D.**—Case of the genera Rhina and Magdalis. **102,** xx, 72-8. **Ritchie, W.**—The structure, bionomics, and forest importance of Myelophilus minor. **150,** lii, 213-34.

Blaisdell, F. E.—Synopsis of the genus Tegrodera [1 new]. **4,** 1918, 333-5. **Fisher, W. S.**—A new sp. of Agrilus from Florida. **102,** xx, 67-8.

HYMENOPTERA. Cockerell, T. D. A.—New halictine bees from Chile. A group of American halictine bees simulating the old world genus Nomioides. **4,** 1918, 343-5; 348-9. **Cushman, R. A.**—Correct names for some of our common ichneumonid parasites. **102,** xx, 9-12. **Gatenby, J. B.**—Polyembryony in parasitic H. **177,** lxiii, 175-96. **Kutter, H.**—Beitrage zur ameisenbiologie. **81,** xxxviii, 110-16. **Nelson, J. A.**—An eyeless drone honeybee. **102,** xx, 105-8. **Wasmann, E.**—Bemerkungen zur neuen auflage von K. Escherich "Die Ameise." **81,** xxxviii, 116-29.

Gahan, A. B.—Description of a new hymenopterous parasite (Braconidae). Three new chalcidoid egg-parasites. On Propachyneuron (Chalcidoidea). **102,** xx, 18-19; 23-6; 66. **Rohwer, S. A.**—Note on Chalcis abiesae. New sawflies of the subfamily Diprioninae. **102,** xx, 18; 79-90.

A Revision of the Vespidae of the Belgian Congo Based on the Collection of the American Museum Congo Expedition, with a List of Ethiopian Diplopterous Wasps. By J. Bequaert. Bulletin of the American Museum of Natural History, XXXIX, article 1, pages 1-384, plates I-VI, 267 text-figures. New York, Aug. 2, 1918.

In common with other taxonomists to whom the description of new species is a necessary and time-consuming, yet not at all pleasurable, feature of their work, the reviewer always feels a distinct satisfaction in handling a comprehensive, well-balanced and adequately illustrated systematic treatise. This satisfaction is further increased if the work goes beyond systematics alone and adds valuable data on the habits and distribution of the species studied. The publication here noticed is distinctly in this category, being in addition clearly presented and

admirably arranged, with its geographic information supported by the personal knowledge of the Congo possessed by the author.

The material collected by Messrs. Lang and Chapin on the American Museum Congo Expedition formed the basis of Dr. Bequaert's contribution. In other groups of insects the study of these collections will supply equally important, and let us hope equally satisfactory and comprehensive, works. The Lang-Chapin collection of Vespidae was made in the Belgian Congo between June, 1909, and October, 1915, and consisted of over 2700 specimens of the family, the most extensive collection of that group ever made in the Ethiopian region. We are informed the best series were from regions the wasp faunae of which were practically unknown previous to that time, among these being the Ituri forests and the savannahs of the northeastern Uele region.

The collections studied contained representatives of 83 species and 24 "well marked color varieties," of which 21 species and 9 varieties are described for the first time in this paper. Of the remaining 62 species only 25 "had hitherto been found within the boundaries of the Belgian Congo." To summarize, on the basis of the present paper, we now know of 101 species of Vespidae from the Belgian Congo, 21 of which are here first described and 37 first recorded from that territory. According to Bequaert the Belgian Congo possesses "about one-fifth of the total number of Vespidae described from the entire Ethiopian region." The types of all the new species and varieties are deposited in the American Museum of Natural History.

Certain features of the paper deserve having attention called to them, both from their value in this paper and also their worth as models for other authors. On page 7 is given a list of approximate locations of places mentioned in the paper, with districts and latitude and longitude, which is supplemented on page 9 by a map of the Congo Basin, showing the localities mentioned and the limits of the West African Rain Forest.

Under "Specific Characters in the Vespidae" we find an interesting resumé on the relative value of structural and color characters, which is so presented that it applies to many groups of insects other than the Vespidae. The summary given on page 11 is to our mind so clearly stated and axiomatic we may be pardoned for quoting it. "The variation of the color markings is always much greater than that of the structural characters. In many cases we find an almost constant structural type presenting numerous, different color varieties; it seems evident that these color forms are genetically related; the color characters may be more recent and therefore less stable, or they may be more subject to modifications under the influence of external factors. At any rate, they may be considered as different clothes worn by the same morphological type, this type being of monophyletic origin. The problem becomes still more interesting when we note the occurrence of the

same color pattern, the same cloth, in very different morphological types, often belonging to different genera."

Under "Peculiarities of the Ethiopian Wasp Fauna" we find a most interesting discussion, to illustrate which the author uses Engler's important map of the botanical regions of Africa. This section of the paper has a value to any zoologist studying the Ethiopian representatives of any group. Here we also find included a distributional table of the numbers of genera and species of Vespidae found in the major faunal divisions of the world, which emphasizes the relative poverty of the Ethiopian region in diplopterous wasps, when compared with the Neotropical and Australian and Oriental regions.

In the descriptive account of the species the method of treatment is well worthy of imitation elsewhere. After remarks on each genus in the Ethiopian region we have a summary of the known ethology of the genus, followed by a key to the Congo species and frequently maps showing the Ethiopian distribution of the genus discussed. The descriptions of species, new and re-described previously known forms, are particularly full, accompanied by well selected outline illustrations of the diagnostic features. In certain cases genera are fully re-described.

Under certain genera, as *Eumenes*, summaries of the general types of coloration found in the genus are presented, while the ethological information is often very comprehensive. The treatment of the widely distributed *Eumenes maxillosus* is particularly exhaustive, and here we find tabulations of the parallelism of similarly colored forms in morphologically distinct genera on which phase of the subject are further data under the genera *Odynerus*, *Rhynchalastor* and *Synagris*. The information concerning the acarid chambers of the species of the genus *Nortonia* is detailed and well illustrated.

Under the genus *Synagris* is discussed the curious feature of loss of terminal palpal joints, which is of value in securing a proper conception of the importance of these features in the taxonomy of the genus.

The "Bibliographic and Synonymic Catalogue of the Ethiopian Vespidae" covers pages 266 to 350. In character it is clear and well arranged, and also conforms with the best practice of the times in giving both summaries of the distribution and the type localities of the species. A particularly full index closes the paper.

As a whole the paper is an excellent one, which any entomologist, or in fact any systematic biologist, would do well to examine, if for no other reason than to profit by the method of presentation of the contents. The author, the American Museum of Natural History and the Congo Expedition members equally can feel pride in the publication of Dr. Bequaert's study. May all the Congo reports be as commendable as this one.—J. A. G. Rehn.

OBITUARY.

Obituary notices of JOHN W. BRADLEY, of the United States Bureau of Entomology, died July 4, 1918, and of VERNON KING, of the same Bureau, died April 11, 1918, are given in the *Journal of Economic Entomology* for August, 1918. Both were in the aviation service.

Professor DAVID ERNEST LANTZ, assistant biologist in the Bureau of Biological Survey, United States Department of Agriculture, who died in Washington, D. C., on October 7, 1918, took an active interest in the entomological fauna of Kansas during his residence in that State from 1878 to 1904. He was born in Juniata County, Pennsylvania, March 1, 1855.

FREDERICK KNAB, of the Bureau of Entomology, United States Department of Agriculture, died November 2, 1918, after a long illness. He was born in Wurzburg, Germany, September 22, 1865, and after serving as zoological artist to the State Entomologist of Illinois in 1903-1905, entered the service of the Bureau in 1906. He was associated with Doctors L. O. Howard and H. G. Dyar in the authorship of the four volume work, *The Mosquitoes of North and Central America and the West Indies,* published by the Carnegie Institution of Washington, 1912-1917. A biography, bibliography, and probably a portrait, of Mr. Knab will be published in the *Proceedings of the Entomological Society of Washington,* of which he was a member. His duties as Custodian of Diptera in the United States National Museum will be assumed by Prof. J. M. Aldrich.

V. A. ERICH DAECKE, of the Advisory Committee of the NEWS, died at Richmond Hill, Long Island, New York, on October 28, 1918. We hope to give an account of his entomological work in our next number.

The death of STUART C. VINAL, of the Massachusetts Agricultural Experiment Station, on September 26, 1918, is announced in *Science*. He was twenty-three years old. "He discovered the presence of the European corn borer, *Pyrausta nubilalis*, in this country last year and was engaged in the study of its habits when seized with influenza."

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS

OF THE

ENTOMOLOGICAL SECTION

OF THE

ACADEMY OF NATURAL SCIENCES

OF

PHILADELPHIA.

VOLUME XXIX, 1918.

PHILIP P. CALVERT, Ph.D., Editor.
E. T. CRESSON, Jr., Associate Editor.

HENRY SKINNER, M. D., Sc. D., Editor Emeritus.

Advisory Committee:

EZRA T. CRESSON
PHILIP LAURENT
ERICH DAECKE.
J. A. G. REHN.
H. W. WENZEL.

PHILADELPHIA:
Entomological Rooms of
The Academy of Natural Sciences,
Logan Square.
1918.

The several numbers of the NEWS for 1918 were mailed at the Philadelphia Post Office as follows:

No. 1—January	January 12, 1918
" 2—February	February 2,
" 3—March	March 2
" 4—April	April 1
" 5—May	April 30
" 6—June	May 31
" 7—July	July 5
" 8—October	October 4
" 9—November	November 2

The date of mailing the December, 1918, number will be announced in the issue for January, 1919.

PRESS OF
P. C. STOCKHAUSEN
PHILADELPHIA

INDEX TO VOL. XXIX.

(* indicates *new* genera, species or varieties.)

ALDRICH, J. M. The anthomyid genus *Pogonomyia*. (Illus.) 179

Samuel Wendell Williston 322

ALEXANDER, C. P. A new interpretation of the wing-venation of the Pediciine crane-flies. (Illus.) 201

New species of Crane-flies from California 285

BAERG, W. J. Key to eastern species of *Rhyphus* 354

BARBER, H. G. Corrections to "New York Scolopostethi". 51

BEUTENMULLER, W. Description of a new *Periclistus* 251

Notes on Cynipidae, with description of a new species. 327

BLAISDELL, F. E. Studies in the tenebrionid tribe Eleodiini. Nos. 3, 4 ..... 162, 380

Studies in the Tenebrionidae 7

BRAUN, A. F. New genera and species of Lyonetiidae 245

BRIMLEY, C. S. Records of North Carolina Odonata from 1908 to 1917 227

BRITTAIN, W. H. Entomological Society of Nova Scotia. A Correction 38

CALVERT, P. P. An appeal for co-operation. (Editorial) .. 112

Entomology in Central Europe. (Editorial). 353

Entomology at the convocation week meetings. (Editorial) 71

The forms of generic and specific names. (Editorial) .. 192

Making the editorial of greater use to entomology. (Editorial) 232, 270

No simple life for insects. (Editorial) 313

The present crisis. (Editorial). 33

Review: Lutz's Field book of Insects. 155

Rules and suggestions for our contributors. (Editorial). 389

CAUDELL, A. N. Regarding *Diapheromera velici* and *Manomera blatchleyi* 258

COCKERELL, T. D. A. A remarkable new bee of the genus *Oxaea* 252
Some bees of the genus *Panurginus*. 169
The Bembicine wasps. 59
COLE, F. R. A new genus of Cyrtidae from South America. (Illus.) 61
CRESSON, E. T., JR. New North American Diptera. 133
CRESSON & REHN. (See Entomological Literature.)
CURRIE, R. P. Occurrence of the damselfly, *Argiallagma minutum*, in southern Florida 271
DICKERSON & WEISS. *Corythucha spinulosa*, a new lace-bug on wild cherry. (Illus.) 121
DICKERSON, E. L. (See also Weiss & Dickerson.)
DOZIER, H. L. An annotated list of Gainesville, Florida, Coleoptera 295, 331, 370
DUNN, L. H. The lake mosquito, *Mansonia titillans*, and its host plant, *Pistia stratiotes*, in the Canal Zone, Panama 260, 288
EMERTON, J. H. A new house spider 74
EWING, H. E. The beetle-mite fauna of Mary's Peak, Coast Range, Oregon. (Illus.) 81
FAUST, E. C. A new Tyroglyphid for western Montana. (Illus.) 336
FERRIS, G. F. The alleged occurrence of a seasonal dimorphism in the females of certain species of mealy bugs 349
FOX, H. On a long-winged or caudate phase of *Neotettix proavus*. (Illus.) 347
FROST, C. W. Dragonfly larva feeding on a living snake. . 335
FUNKHOUSER, W. D. A new membracid on Cypress. (Illus.) 185
GARNETT, R. T. Beetle, *Hippomelas sphenicus*, prey of wasp 142
Notes on *Dinapate wrightii*. (Illus.) 41
GILLETTE, G. P. Some grass-root Aphids. (Illus.) 281
GIRAULT, A. A. New and old West Indian and North American chalcid flies 125
The North American species of *Cerchysius*, females ... 65

Goe, M. T. Life history of *Gastroidea caesia* 224
Hancock, J. L. A new genus and two new species of Tettigids, with a note on *Nomotettix borealis*. (Illus.) ..343
Hebard, M. A correction concerning *Labia annulata* and *Labia dorsalis* 66
A generic assignment of three North American species of Dermaptera 5
(See also Rehn & Hebard.)
Hopfinger, J. C. Notes on *Papilio indra* 354
Howard, L. O. A note on insects found on snow at high elevations 375
An unusual bumblebees' nest 114
Moonstones in a Cecropia cocoon 15
Huguenin, J. C. Early appearance of *Lycaena antiacis* and *xerxes* 392
Hungerford, H. B. Concerning the oviposition of Notonectae. (Illus.) 241
Ireland, W. H. Collecting notes from California 353
Jones, F. M. *Dorniphora venusta* in *Sarracenia flava*. (Illus.) 299
Knab & Van Zwaluwenburg. A second Mycetophila with dung-bearing larva. (Illus.) 138
Knight, H. H. New species of *Lopidea* from Arizona. (Illus.) 172
Old and new species of *Lopidea* from the United States. (Illus.) 210
Knull, J. N. A new species of *Eupogonius* from Pennsylvania 132
Laurent, P. Notes on variations and abnormal forms of three species of Saturniidae. (Illus.) 161
Leng, C. W. Genitalia of Rhynchophora—Material wanted 150
Leussler, R. A. Interesting butterfly occurrence at Beeville, Texas 149
McAtee, W. L. Psyllidae of the vicinity of Washington, D. C., with description of a new species of *Aphalara*. (Illus.) 220
Vaporous discharge by *Anisomorpha buprestoides* 388

McDunnough, J. Dates of issue of the plate of Guérin's Iconographie du Regne Animal 378
A review of reviews 187
Malloch, J. R. Another European anthomyiid in Illinois 113
A new species of *Johannsenomyia* 229
Obituary: Charles A. Hart 157
Occurrence of a European Anthomyiid in Illinois 32
Pyrrhotes haematoloma and *Leptocoris trivittatus* in Illinois 284
Two new North American Phoridae 146
Marchand, W. The larval stages of *Argyra albicans*. (Illus.) 216
Marlatt, C. L. Interrelations of different species of insects 74
Parker, R. R. Data concerning flies that frequent privy vaults in Montana 143
Parshley, H. M. Bibliography of the North American Hemiptera in preparation 391
Rau, P. Maternal care in *Dinocoris tripterus* 75
Rehn, J. A. G. Obituary: Adolph Friedrich, grand duke of Mecklenburg-Strelitz 159
Review: Bequaert's Revision of the Vespidae of the Belgian Congo 397
(See also Cresson & Rehn.)
Rehn & Hebard. A new species of the genus *Nemobius* from California. (Illus.) 102
Robertson, C. Proterandry and flight of bees 340
Some genera of bees 91
Rohwer, S. A. Notes on and descriptions of the Nearctic wood-wasps of the genus *Xiphydria* 105
Schaus, W. A new *Agrias* from Guatemala 387
Sell, R. A. Notes on the hibernating of the belted cucumber beetle 93
Skinner, H. *Argynnis apacheana*, a new name 67
As to types. (Editorial.) 148

A gynandromorph of *Callosamia angulifera* and *Melitaea phaeton* aber. *streckeri* 309
Obituary notice of William D. Kearfott 1
Review: Barnes & McDunnough's Contributions, Vol. IV, Pt. 2 277
Review: Oberthur's Études de Lepidoptérologie Comparée 118
Review: Escomel's The *Latrodectus mactans* and the *Gliptocranium gasteracanthoides* in the Department of Arequipa, Peru 118
Review: Nagano's Study of the Japanese Lasiocampidae. 197
Review: Report of the proceedings of the Second Entomological meeting held at Pusa, India 277
Selenis sueroides 44
Some species of *Copaeodes* 150
Smith, M. R. A key to the known species of South Carolina ants, with notes 17
Stearns, L. A. Description of a new species of the family Cercopidae from Wisconsin 3
Stout, A. L. Variation in labial characters in the nymph of *Gomphus spicatus*. (Illus.) 68
Swain, A. F. Miscellaneous studies in the family Aphididae. (Illus.) 361
Tillyard, R. J. The Micropterygidae not of the jugate type. (Illus.) 90
De La Torre Bueno, R. J. Review: Van Duzee's Catalogue of the Hemiptera 154
Townsend, C. H. T. A new muscoid genus from the Chiricahua mountains, Arizona 177
Watson, J. H. *Hemileuca burnsi*, its specific validity and habitat 252
Weiss, H. B. Additional Acarina found in New Jersey .. 193
Additions to insects of New Jersey, No. 6 309
Gracilaria zachrysa in New Jersey 114
Isaac P. Trimble, M.D., early economic entomologist of New Jersey 29
(See also Dickerson & Weiss.)

Weiss & Dickerson. The early stages of *Corythucha pergandei*. (Illus.) 205
Wickham, H. F. An interesting new species of Eleodes .. 255
Feeding habits of a harvest spider 115
Williams, R. C., Jr. The genus *Lycaena, enoptes*-group. (Illus.) 99
Wilson, H. F. A new species of *Microsiphum*. (Illus.) .. 230
Van Duzee, M. C. New North American species of Dolichopodidae. (Illus.) 45
Van Dyke, E. C. New inter-tidal rock-dwelling Coleoptera from California 303
New Species of Buprestidae from the Pacific States—No. 2 53
Yuase, H. An extra molt in the nymphal stages of the chinch bug 233
Zwaluwenburg, R. H. (See Knab and Zwaluwenburg.)

GENERAL SUBJECTS

Academy of Natural Sciences of Philadelphia. (See Entomological Section.)
American Entomological Society 36, 197
Association of Economic Biologists, Membership in the 171
British Museum not to be used for Government purposes 111
Central Europe, Entomology in 353
Collecting in Guatemala, Mr. Schaus's 113
Collections of the late W. H. Harrington 391
Convocation Week Meetings, Entomology at the..... 71, 393
Co-operation, An appeal for.. 112
Crisis, The present..... 33
Doings of Societies, 36, 79, 119, 156, 197, 278, 319, 359.
Editorial of greater use to entomology, Making the..232, 270
Emergency Entomological Service.....72, 234, 271, 313
Enthusiasm, Genuine entomological 92
Entomological Literature, 34, 76, 116, 151, 194, 237, 274, 314, 355, 394.
Entomological Section, 37, 79, 198, 278, 359.
Feldman Collecting Social, 39, 119, 199, 279, 319, 360.
France, Entomological Society of 79, 278
Generic and specific names, Forms of..... 192
Harrington collections 391
Honors to entomologists 377
Insects attacking insects, 66, 126, 141, 296, 312.
Minnesota, New entomological officials in 113
New York Entomological Society Fund 114
New York Entomological Society Meeting 278
Nova Scotia, Entomological Society of, A correction... 38
Ohio Entomologists, Meetings of 156
One hundred and fifty years of collecting 113
Plants attacked by insects, 41, 44, 73, 107, 114, 121, 132, 172, 185, 193, 205, 210, 220, 224, 230, 235, 241, 246, 251, 272, 274, 279, 283, 284, 309, 313, 329, 336, 360, 363
Plants visited by insects, 40, 55, 60, 297, 299, 360, 370.
Rippon Collections go to the National Museum of Wales 111
Rules and suggestions for contributors 380
Scudder's Tertiary Insects of North America 131
Simple life for insects, No... 313
Snow at high elevations, Note on insects found on..... 375
Spain, Foundation of the Entomological Society of.... 279
Types, As to 148

OBITUARY NOTICES

Baer, G. A. 280
Bradley, J. W. 400
Champion, R. J. 80
Daecke, E. 400
Dixon, S. G. 157
Frey-Gessner, E. 240
Göldi, E. A. 80
Grouvelle, A. 80
Harrington, W. H. 320
Hart, C. A. 157
Harwood, W. H. 240

Kearfott, W. D. (ill.) 1
King, V. 400
Knab, F. 400
Lantz, D. E. 400
Leonardi, G. 360
Mecklenburg, A. F. duke of.. 159
Palm, C. 159
Reinecke, O. 240
Sleight, C. E. 280
Standen, R. S. 240
Standfuss, M. 80
Vinal, S. C. 400
Williston, S. W. 322
Xambeu, P. 80

PERSONALS

Ball, E. D. 377
Bradley, J. C. 74
Godman, F. D. 377
Howard, C. W. 74
Knight, H. H. 74
Marchal, P. 377
Pickard-Cambridge, O. 302
Smart, H. D. 92
Trimble, I. P. 29
Wade, J. S. 74
Walsh, B. D. 72
Washburn, F. L. 70
Williston, S. W. (ill.) 321

REVIEWS

Barnes & McDonnough: Contributions Vol. IV, pt. 2... 277
Bequaert: Revision of the Vespidae of the Belgian Congo 397
Escomel: Latrodectus mactans and the Gliptocranium gesteracanthoides 118
Fletcher: Report of proceedings of the entomological meeting at Pusa 277
Lutz: Field book of insects.. 155
Nagano: Japanese Lasiocampidae and Drepanidae.. 197
Oberthur: Études de Lepidoptérologie 118
Van Duzee: Catalogue of the Hemiptera 154

GEOGRAPHICAL DISTRIBUTION

Arachnida: Iowa, 115; Mass., 74; Mont., 336*; N. J., 193; Ohio, 74; Oreg., 81.
Coleoptera: Can., 120; Ariz., 168*, 279; Cal., 8*, 41, 53*, 142, 162*, 303*, 381*; Col., 200; Del., 40; Fla., 120, 200, 235, 272, 295, 370; Me., 272; Md., 120; Mo., 235; Nev., 162*; N. J., 39, 40, 311, 369; N. Mex., 257*; N. C., 39; Oreg., 11, 163*, 224, 381; Pa., 40, 119, 132, 199, 369; Tex., 200; Utah, 167*, 386*; Va., 39, 93, 120; Wash., 167*.
Diptera: Greenl., 137*; Can., 46, 183; Ariz., 48*, 177; Cal., 45, 48*, 133*, 183, 285*; Col., 183; Fla., 46, 320; Ida., 183; Ill., 32, 113, 147*, 183, 230*; Mont., 143; Neb., 47*; N. J., 46*, 120, 216, 312; N. Mex., 133*; N. Y., 133*; Wisc., 183; S. C., 299; W. Ind., 140*; C. Am., 260; S. Am., 61*
Hemiptera: Alab., 212, 272; Ariz., 172*, 212*, 245; Cal., 245, 272, 349, 361; Col., 175*, 210, 213*, 283*; Conn., 211, 272; Ga., 211; Ill., 214*, 284; Iowa, 210; Kans., 233, 245; La., 185*, 235, 272; Me., 210; Md., 210, 220*; Mass., 210; Mo., 211, 214*; Mont., 210; Nev., 272; N. H., 210; N. J., 121, 205, 210, 272, 309; N. Mex., 172*; N. Y., 210, 245; N. C., 211; N. D., 213*; Ohio, 212, 272; Okla., 272; Oreg., 230*, 272; Tex., 215*, 272, 284; Utah, 210; Va., 210, 211*, 220; Wash., 272; Wisc., 3*, 272; Asia, 274.

Hymenoptera: Can., 110; Cal., 66*, 251*; Conn., 108; Ga., 329; Kans., 110; Md., 107; Mass., 110; Mo., 114; N. H., 110; N. J., 107, 312; N. Y., 108, 330*; Pa., 107; S. C., 17; Tex., 329; Va., 108; W. Ind., 125; Mex., 170*; S. Am., 169*, 252*.
Lepidoptera: Ariz., 37; Cal., 37, 100, 231, 246*, 353, 392; Col., 100; Conn., 369; Fla., 37, 39, 44, 198; Ga., 198; La., 249*; Md., 251*; Mass., 235; Mo., 37; N. J., 40, 144, 311; N. Mex., 36, 100; N. C., 248*; Ohio, 248*; Okla., 37; Oreg., 37; Pa., 36, 39, 40, 99, 119, 161, 360; Tex., 149, 150; Utah, 100; Wash., 354; W. Ind., 38; C. Am., 387*.
Neuroptera: N. J..... 309
Odonata: Fla., 271; Mass., 37; N. C., 227; Pa., 198, 278.
Orthoptera: Cal., 102*; Fla., 388; Ill., 259; Ind., 259; Iowa, 259; Kans., 259; Md., 259; Minn., 259; N. J., 259; N. Y., 259; Okla. 259; Tenn., 345*, 347; Tex., 259, 345*; Wash., 259; C. Am., 5.

ARACHNIDA

Acarina found in New Jersey, Additional 193
Achipteria (see *oregonensis, borealis*).
*acuta**, *Oribatella* (ill.)..... 84
*aequidentatus**, *Liacarus* (ill.) 86
Beetle mite fauna of Mary's Peak, Oregon (ill.)..... 81
*bidentatus**, *Liacarus* (ill.)... 85
*borealis**, *Achipteria* (ill.)... 84
colorodensis, Thanatus 74
Eupelops (see *monticolus, subborealis*).
Feeding habits of Phalangida 115
House spider, A new..... 74
Hermanniella (see *robusta, occidentalis*).
Jugatala (see *lamellata*).
*lamellata**, *Jugatala* (ill.).... 84
Liacarus (see *bidentatus, robustus, aequidentatus*).
*monticolus**, *Eupelops* (ill.).. 82
*occidentalis**, *Hermanniella* (ill.) 87
*oregonensis**, *Achipteria* (ill.) 83
Oribatella (see *acuta*).
Phalangida, Feeding habits of 115
Pickard-Cambridge collection. 302
Rhizoglyphus (see *sagittatae*).
*robusta**, *Hermanniella* (ill.) 87
*robustus**, *Liacarus* (ill.).... 85
*sagittatae**, *Rhizoglyphus* (ill.) 336
*subborealis**, *Eupelops* (ill.). 82
Thatanus (see *coloradensis*).
Tyroglyphid from western Montana, New (ill.)..... 336

COLEOPTERA

Additions to New Jersey records 311
*affinis**, *Eleodes inculta* 384
*attenuata**, *Eleodes hispilabris* 168
balteata, Diabrotica 93
*barbata**, *Eleodes* 256
Belted cucumber beetle (see *Diabrotica balteata*).
Blapylis (see *Eleodes*).
*breviscetosa**, *Eleodes pimeliodes* 162
*bridwelli**, *Poecilonota* 53
Buprestidae from the Pacific States, New 53
caesia, Gastroidea 224
*californica**, *Melanophila* 54
californicus, Eurystethes 307
Chrysobothris (see *falli, laricis, exesa*).

Coniontis (see *hoppingi, muscula, montana*).
Diabrotica balteata, Hibernating of 93
Dinapate wrightii, Notes on (ill.) 41
Eleodes, Interesting new..... 255
(See also *brevisetosa, nuncupmacheri, verrucula, propinqua, imitabilis, elongata, attenuata, squalida, vandykei, hornii, monticula, perpunctata, gigantea, meridionalis, patruelis, horrida, affinis*).
Eleodiini, Studies in the..162, 380
*elongata**, *Eleodes hispilabris imitabilis* 167
Eupogonius from Pennsylvania, New 132
Eurystethes (see *californicus, stejnegeri, fuchsii, subopacus*).
exesa, Chrysobothris 58
*falli**, *Chrysobothris* 56
*fraxini**, *Eupogonius* 132
fuchsii, Eurystethes 307
Gastroidea caesia, Life history and habits 224
Genitalia of Rhynchophora, Material wanted 150
gigantea, Eleodes 386
Hibernating of the belted cucumber beetle 93
Hippomelas sphenicus, prey of wasp 142
*hoppingi**, *Coniontis* 7
hornii, Eleodes 385
*horrida**, *Eleodes cordata*... 383
*imitabilis**, *Eleodes hispilabris* 167
Inter-tidal rock-dwelling coleoptera 303
Interrelations of different species 74
*lapidicolus**, *Ochthebius* 306
laricis, Chrysobothris 58
Life history and habits of *Gastroidea caesia* 224
List of Coleoptera of North America 392
List of Gainesville, Florida, Coleoptera.....295, 331, 370
Material desired for study... 64
*meridionalis**, *Eleodes gigantea* 387
Melanophila (see *californica*).
montana, Coniontis 11
*monticula**, *Eleodes hornii*.. 385
*muscula**, *Coniontis globulina* 9
*nigripennis**, *Thalassotrechus*. 304
*nuncupmacheri**, *Eleodes* 163
Ochthebius (see *lapidicolus*).
*patruelis**, *Eleodes pimeliodes* 382
*perpuncata**, *Eleodes dentipes* 386
Poecilonota (see *bridwelli*).
*propinqua**, *Eleodes* 165
Rhynchophora, Material wanted for genitalia..... 150
Rock-dwelling coleoptera from California, New 303
sphenicus, Hippomelas 142
*squalida**, *Eleodes parvicollis* 380
stejnegeri, Eurystethes 307
*subopacus**, *Eurystethes* 308
Tenebrionid tribe Eleodiini, Studies in 162, 380
Tenebrionidae, Studies in the 7
*Thalassotrechus** 303
vandykei, Eleodes 381
*verrucula**, *Eleodes nuncupmacheri* 164
wrightii, Dinapate (ill.)..... 41

DIPTERA

Additions to New Jersey list. 312
*adrogans**, *Cordilura* 135
albicans, Argyra 216

albula, Phorbia 32
alpicola, Pogonomyia (ill.)... 184
alternatus, Rhyphus 354
amans, Cordilura* 134
amoena, Orthacheta* 133
ancyliformans, Mycetophila (ill.) 139
annulicornis, Johannsenomyia* 230
Anthomyid genus *Pogonomyia* (ill.) 179
Anthomyiid in Illinois, Occurrence of 32, 113
Aphiochaeta (see *quadripunctata*).
Apocephalus (see *pictus*).
appendiculatus, Asyndetus 46
argentatus, Hydrophorus* ... 50
Argyra albicans, Larval stages (ill.) 216
Asyndetus (see *appendiculatus*).
aterrima, Pogonomyia 182
cavicola, Chiricahuia* 178
chilensis, Villalus* (ill.)..... 63
*Chiricahuia** 177
cinctipennis, Erioptera* 286
Cordilura (see *vierecki, amans, adrogans*).
Crane flies from California, New 285
Crane flies, Wing venation of 201
curvipes, Hydrophorus* (ill.) 48
Cyrtidae from South America, A new genus of (ill.)..... 61
Dactylolabis (see *Limnophila*).
dimidiata, Parallelomma*.... 135
Dolichopodidae, New North American (ill.) 45
Dohrniphora venusta in *Sarracenia flava* (ill.)..... 299
Dung-bearing larva of Mycetophila 138
Erioptera (see *cinctipennis*).
European Anthomyiid in Illinois 32, 113
fenestralis, Rhyphus 354
flavicornis, Paraclius* 48
flavida, Phyllolabis* 287
Flies that frequent privy vaults in Montana, Data concerning 143
Hercostomus (see *unicolor*).
Hydrophorus (see *curvipes, argentatus*).
Johannsenomyia, New species of 229
Lake mosquito (see *Mansonia titillans*).
laticrus, Tachytrechus* (ill.) 46
Larval stages of *Argyra albicans* (ill.) 216
lepus, Parasyntormon* (ill.). 45
Limnophila (see *nitidithorax*).
Mansonia titillans and its host plant in the Canal zone, 260, 288
merdigera, Mycetophila* (ill.) 140
Mosquitoes and the war..... 191
Mosquito, *Mansonia titillans* and its host plant in the Canal zone 260, 288
Muscoid genus from Chiricahua mountains of Arizona, New 177
Mycetophila with dung-bearing larva (ill.)..... 138
nigrocaudatus, Paraclius*.... 47
nigrolanata, Scathophaga*.... 136
nigrolimbata, Scathophaga*... 137
nitens, Pogonomyia 183
nitidithorax, Limnophila* 288
nudicornis, Parallelomma* ... 135
Orthacheta (see *amoena*).
Paraclius (see *nigrocaudatus, flavicornis*).
Parallelomma (see *nudicornis, dimidiata, vicina*).
Parasyntormon (see *lepus*).

Pediciine crane flies, Interpretation of wing venation (ill.) 201
Phaonia (see *querceti*).
Phorbia (see *albula*).
Phoridae, New North American 146
Phyllolabis (see *flavida*).
pictus, Apocephalus* 146
Pogonomyia, Anthomyid genus (ill.) 179
Privy vault flies..... 143
Protoplasa (see *vanduzeei*).
punctatus, Rhyphus 354
quadripunctata, Aphiochaeta*. 147
querceti, Phaonia 113
Rhyphus, Key to eastern species 354
Scathophaga (see *nigrolanata, nigrolimbata*).
Scathophagidae, New North American 133
spinitarsis, Pogonomyia*..... 180
Tachytrechus (see *laticrus*).
titillans, Mansonia 260, 288
unicolor, Hercostomus 46
vanduzeei, Protoplasa* 285
venusta, Dohrniphora (ill.)... 299
vicina, Parallelomma* 136
vierecki, Cordilura* 134
*Villalus** (ill.) 61
War, Mosquitoes and..... 191
Wing-venation of the Pediciine crane flies, New interpretation of (ill.)..... 201

HEMIPTERA

Additions to New Jersey list.. 309
agrifoliae, Pseudococcus 349
apache, Lopidea* (ill.)..... 173
Aphalara, New species of (ill.) 220
Aphididae, Studies in the family (ill.) 301
Aphids, Some grass-root (ill.) 281
arizonae, Lopidea* (ill.)..... 172
atlanticus, Scolopostethus..... 52
Bibliography of North American Hemiptera in preparation 391
Brachycolus 364
caesar, Lopidea (ill.)..... 212
californicus, Monellia 366
caricicola, Thripsaphis* (ill.) 367
caryella, Monellia 365
Cercopidae from Wisconsin.. 3
Cerosipha (see *cupressi*).
Chinch bug, Extra molt..... 233
confluens, Lopidea (ill.)..... 211
Corythucha pergandei, Early stages of (ill.)..... 205
spinulosa, a new lace-bug (ill.) 121
Cottony cushion scale in Ceylon 274
Cryptosiphum 365
cupressi, Cerosipha 364
diffidens, Scolopostethus 52
Dimorphism in certain species of mealy bugs 349
Dinocoris tripterus, Maternal care in 75
Early stages of *Corythucha* (ill.) 205
cas, Aphalara* (ill.)..... 221
Forda (see *formicaria, olivacea*).
formicaria, Forda (ill.)..... 282
garryae, Lopidea* (ill.)..... 175
glauca, Notonecta (ill.)..... 245
haematoloma, Pyrrhotes 284
Icerya purchasi in Ceylon... 274
incurva, Lopidea* (ill.)..... 214
indica, Notonecta (ill.)..... 245
insulata, Notonecta (ill.).... 245
intermedia, Lopidea* (ill.)... 210
Interrelations of different species 74

irrorata, Notonecta (ill.).... 245
Lace-bug on wild cherry (ill.) 121
lateralis, Lopidea* (ill.)..... 174
lepidii, Lopidea* (ill.)..... 175
Leptocoris in Illinois..... 284
Lopidea from Arizona (ill.). 172
Lopidea from the United States, Old and new (ill.).. 210
lutea, Notonecta (ill.)..... 244
Macrosiphoniella 362
Macrosiphum, A new (ill.)... 230
major, Lopidea* (ill.)..... 215
Maternal care in *Dinocoris tripterus* 75
Mealy bugs, Occurrence of a seasonal dimorphism in females of 349
media, Lopidea (ill.)..... 210
Membracid on Cypress (ill.). 185
mexicana, Notonecta (ill.)... 245
minima, Lopidea* (ill.)..... 176
Molt in nymphal stages of chinch bug 233
Mosellia 305
navajo, Lopidea* (ill.)..... 173
Notonectae, Oviposition of (ill.) 241
nymphal stages of chinch bug, Extra molt 233
olivacea, Forda (ill.)..... 283
Oviposition of Notonectae (ill.) 241
parallelus, Philaenus* 3
pergandei, Corythucha (ill.). 205
Philaenus (see *parallelus*).
picta, Lopidea* (ill.)..... 214
Pseudococcus (see *agrifoliae, quercicolus, trifolii*).
Psyllidae of the vicinity of Washington, D. C..... 220
purchasi, Icerya 274
Pyrrhotes and *Leptocoris* in Illinois 284
quercicolus, Pseudococcus.... 350
ralcighii, Notonecta (ill.).... 245
rhododendri, Macrosiphum* (ill.) 230
robiniae, Lopidea (ill.)..... 211
sanborni, Macrosiphum (ill.) 363
sayi, Lopidea* (ill.)..... 212
Scolopostethi, Corrections.... 51
shooterii, Notonecta (ill.).... 245
*Siphonatrophia** 363
spinulosa, Corythucha (ill.). 121
Stictolobus (see *trilineatus*).
texana, Lopidea* (ill.)..... 215
thomsoni, Scolopostethus 52
Thripsaphis (see *caricicola*).
trifolii, Pseudococcus 351
trilineatus, Stictolobus* (ill.) 185
tripterus, Dinocoris 75
trivittatus, Leptocoris 284
uhleri, Notonecta (ill.)..... 245
undulata, Notonecta (ill.).... 245
variabilis, Notonecta (ill.)... 245

HYMENOPTERA

abdominalis, Xiphydria 107
Additions to New Jersey list. 312
aeneiventris, Panurginus 170
agrifoliae, Callirhytis 328
americanus, Camponotus 26
americanus, Lasius 28
americensis, Stomatocera*s... 127
analis, Iridomyrmex 24
Andricus (see *impositus*).
Ants of South Carolina..... 17
Aphaenogaster (see *treatae, lamellidens, fulva, carolensis*).
Atta (see *septentrionalis*).
atterina, Dolichoderus taschenbergi 23
badius, Pogonomyrmex 20
basalis, Xiphydria 110
Bees, Some genera of..... 91
Bembicine wasps 50

Biorhiza (see *nigra*).
Bombus, Unusual nest of.... 114
Bruchobius (see *laticeps*).
Bumblebees' nest, Unusual... 114
caespitum, Tetramorium 22
californicus, Closterocerus... 131
Callirhytis (see *agrifoliae*).
callurus, Panurginus* 169
Camponotus (see *pennsylvanicus, decipiens, nearcticus, americanus*).
canadensis, Xiphydria 110
carme, Idarnes 129
carolensis, Aphaenogaster..... 21
castanopsidis, Perisclistus*... 251
caudatus, Cerchysius 65
Cerchysius, North American species of 65
Chalcid-flies, West Indian and North American 125
claviger, Lasius 29
Closterocerus (see *utahensis*).
clypeatus, Polycystus* 128
concinnus, Panurginus 171
coriacea, Halictus 91
crassicornis, Pheidole 22
Cremastogaster (see *missouriensis, lutea, lineolata*).
*Curtisapis** 91
curvispinosus, Leptothorax... 19
cyaneiventris, Mosolelaps.... 129
Cynipidae, Notes and descriptions 327
decipiens, Camponotus 26
dentata, Pheidole 22
Dolichoderus (see *mariae, plagiatus, pustulatus, atterina*).
Dorymyrmex (see *pyramicus, niger, flavus*).
Eciton (see *opacithorax*).
Eiseniella (see *Secundeisenia*).
clasmoceri, Cerchysius 65
*Epimelissodes** 92
erythrogastra, Xiphydria..... 108
eudami, Pseudomphale* 130
flavicornis, Grotiusomyia..... 126
flavus, Dorymyrmex 24
Flight of bees 340
Formica (see *subsericea, integra, pallide-fulva, schaufussi*).
fulva, Aphaenogaster 21
fulvicollis, Philonix 328
georgicus, Megachile 92
*Grotiusomyia** 125
haematura, Oxaea* 252
*Heterosarus** 91
hicoriae, Xiphydria* 109
hubbardi, Cerchysius 65
humilis, Iridomyrmex 24
Idarnes (see *carme*).
imparis, Prenolepis 27
impositus, Andricus* 329
incerta, Sycophila 129
innuptus, Panurginus 171
integra, Formica 27
interjectus, Lasius 29
Interrelations of different species 74
Iridomyrmex (see *humilis, analis*).
kansensis, Pleurotropis* 128
Key to ants of South Carolina 17
lamellidens, Aphaenogaster... 21
lanaeglobuli, Philonix 328
Lasius (see *americanus, latipes, claviger, interjectus.*)
laticeps, Bruchobius 129
latipes, Lasius 29
Leptothorax (see *curvispinosus, pergandei*).
lineolata, Cremastogaster..... 19
ligatus, Halictus 91
lutea, Cremastogaster lineolata 19
maculata, Xiphydria 108
mariae, Dolichoderus 23

marylandicus, Cerchysius..... 66
maura, Perdita 91
mexicana, Secundeisenia..... 126
minimum, Monomorium 20
Miotropsis (see *Grotiusomyia*).
missouriensis, Cremastogaster victima 19
Monomorium (see *minimum*).
morrisi, Pheidole 21
Mosolelaps (see *cyaneiventris*).
Nearctic wood-wasps of the genus *Xiphydria* 105
nearcticus, Camponotus 26
nebulosa, Odontocynips 329
*Neotrypetes** 91
nigra, Biorhiza 327
niger, Dorymyrmex 24
nigricans, Grotiusomyia 126
nigricollis, Philonix 328
*nitescens**, *Panurginus* 170
*Odontalictus** 91
Odontocynips (see *nebulosa*).
Omphalchrysocharis (see *petiolatus*).
opacithorax, Eciton 18
Oxaea, Remarkable new..... 252
pallide-fulva, Formica 27
pallipes, Cerchysius 65
Panurginus, Some bees of... 169
parvula, Prenolepis 28
parvus, Calliopsis 91
pennsylvanicus, Bombus 114
pennsylvanicus, Camponotus.. 26
pergandei, Leptothorax 19
pergandei, Sysphincta 17
Periclistus, Description of a new 251
perlaevis, Panurginus 170
*petiolatus**, *Omphalchrysocharis* 131
Pheidole (see *morrisi, crassicornis, tysoni, dentata, vinelandica*).
Philonix (see *fulvicollis, nigricollis, lanaeglobuli*).
piercei, Panurginus 171
plagiatus, Dolichoderus 23
*planatus**, *Panurginus* 171
Pleurotropis (see *kansensis*).
Pogonomyrmex (see *badius*).
Polycystus (see *clypeatus*).
Prenolepis (see *imparis, parvula*).
productus, Trypetes 91
Proterandry and flight of bees 340
provancheri, Xiphydria 109
Pseudomphale (see *cudami*).
pustulatus, Dolichoderus plagiatus 23
pyramicus, Dorymyrmex 24
rudbeckiae, Panurginus 171
saltensis, Panurginus 170
*Sarogaster** 92
schaufussi, Formica 27
Secundeisenia (see *mexicana*).
*Seladonia** 91
seladonia, Halictus 91
septentrionalis, Trachymyrmex 20
sessile, Tapinoma 25
steinbachi, Panurginus 170
Stomatoceras (see *unipunctatipennis, americensis, tenuicornis*).
subsericea, Formica 27
Sycophila (see *incerta*).
Sysphincta (see *pergandei*).
Tapinoma (see *sessile*).
*tenuicornis**, *Stomatoceras*... 127
Tetramorium (see *caespitum*).
tibialis, Xiphydria 110
Trachymyrmex (see *septentrionalis*).
tractae, Aphaenogaster 21
Types of bembicine wasps.... 59
tysoni, Pheidole 22
*unipunctatipennis**, *Stomatoceras* 127

utahensis, Closterocerus..... 131
*vagabundus**, *Panurginus*..... 169
vinelandica, Pheidole 22
walshii, Xiphydria 110
Wasps, Bembicine 59
*whittieri**, *Cerchysius* 66
Wood-wasps (see *Xiphydria*).
Xiphydria, Notes and descriptions of 105
*Zaodontomerus** 92
*Zaperdita** 91

LEPIDOPTERA

Abnormal forms of Saturniidae (ill.) 161
Additions to New Jersey list.. 309
Agrias from Guatemala, A new 387
*angularis**, *Dicranoctetes*..... 251
angulifera, Callosamia 369
antiacis, Lycaena 392
*apacheana**, *Argynnis* 67
Argynnis apacheana n.n..... 67
(see also *nokomis*).
aurantiaca, Copaeodes 151
battoides, Lycaena 99
bernardino, Lycaena battoides (ill.) 100
*bistrigulella**. *Opostega* 245
brenda, Coenonympha 231
Bucculatrix (see *ceanothiella, latella, quadrigemina, eupatoriella, insolita, pertenuis*).
burnsi, Hemileuca 252
Butterfly occurrences at Beeville, Texas 149
*caenothiella**, *Bucculatrix*.... 246
Callosamia angulifera, Gynandromorph of 369
(see also *promethea*).
candida, Copaeodes 150
cecropia, Samia (ill.)..... 161
centralis, Lycaena battoides (ill.) 100
Cocoon, Moonstones in Cecropia 15
Coenonympha brenda 231
Collecting notes from California 353
Color for clothing suggested by butterfly 34
Copaeodes, Some species of.. 150
*crocea**, *Exegetia* 250
cynthia, Philosamia 161
*Dicranoctetes** 250
Enoptes-group of Lycaena (ill.) 99
*eupatoriella**, *Bucculatrix*.... 247
*Exegetia** 249
glaucon, Lycaena (ill.)..... 100
Gracilaria zachrysa in New Jersey 114
Guérin's Iconographie du Regne Animal, Dates of issue of 378
Gynandromorph of *Callosamia angulifera* 369
Hemileuca burnsi, its specific validity and habitat..... 252
Iconographie du Regne Animal, Guérin's 378
indra, Papilio 354
*insolita**, *Bucculatrix* 248
Jugate type, Micropterygidae not of 90
*latella**, *Bucculatrix* 246
Lycaena antiacis and *xerxes*, Early appearance of..... 392
Lycaena, enoptes-group (ill.) 99
Lyonetiidae, New genera and species 245
Melitaea (see *streckeri*).
Micropterygidae not of the jugate type (ill.)..... 90
minima, Copaeodes 150
Moonstones in a Cecropia cocoon 15

Moths lively after a low temperature 149
nokomis, Argynnis 67
Opostega (see *bistrigulella*).
Papilio indra, Notes on..... 354
*pertenuis**, *Bucculatrix* 249
Philosamia (see *cynthia*).
procris, Copaecdes 150
promethea, Callosamia 161
*quadrigemina**, *Bucculatrix*... 247
rayata, Copaecdes 150
Review of reviews..... 187
*rodriguezi**, *Agrias* 388
Samia (see *cecropia*).
Saturniidae, Variations and abnormal forms of (ill.)..... 161
Selenis sueroides 44
sonorensis, Lycaena (ill.).... 102
streckeri, Melitaea phaeton.. 369
sueroides, Selenis 44
Temperature, Moths lively after low 149
Variations and abnormal forms of Saturniidae (ill.) 161
zaco, Copaecdes 150
xerxes, Lycaena 392
zachrysa, Gracilaria 114

ODONATA

Argiallagma minutum in Florida 271
Damselfly in southern Florida, Occurrence of 271
Feeding on a live snake, Larva 335
Gomphus spicatus, Labial characters in the nymph of (ill.) 68
Labial characters in the nymph of *Gomphus spicatus*, Variation in (ill.)..... 68
Larva feeding on a live snake 335
minutum, Argiallagma..... 271
North Carolina Odonata, Records of 227
Nymph of *Gomphus spicatus*, Labial characters in the (ill.) 68
Records of North Carolina Odonata from 1908 to 1917 227
spicatus, Gomphus 68

ORTHOPTERA

Anisomorpha buprestoides, Vaporous discharge by.. ...
annulata, Labia .....
*apterus**, *Cavotettix* (ill.)...
auricoma, Barygerax ...
Barygerax (see *auricoma, brevi forceps*).
blatchleyi, Manomera ...
borealis, Nomotettix .....
brevi forceps, Barygerax ...
buprestoides, Anisomorpha...
Caudate phase of *Neotettix proavus* (ill.) .. ..
*Cavotettix** .....
Correction concerning *Labia*..
Cylindrogaster (see *Sparatta*).
Dermaptera, Generic assignment of three North American species .. ..
Diapheromera velici, and *Manomera blatchleyi*, Regarding .....
dilatatoides, Sparatta .....
dorsalis, Labia .....
*curvinotus**, *Nemobius* (ill.)..
Generic assignment of three species of Dermaptera....
Labia (see *annulata, dorsalis*). (see also *Barygerax*).
Long-winged phase of *Neotettix proavus* (ill.).
Nemobius from California (ill.) .....
(see also *curvinotus*).
Neotettix proavus, Long-winged or caudate phase of (ill.) .....

Nomotettix borealis, Note on 343
*nullisinus**, *Cavotettix* (ill.).. 344
proavus, *Neotettix* (ill.)..... 347
Sparatta (see *diplatyoides*).
Tettigids, New genus and species of (ill.) 343
Vaporous discharge by *Anisomorpha buprestoides*..... 388
veliei, *Diapheromera* 258

EXCHANGES.

This column is intended only for wants and exchanges, not for advertisements of goods for sale. Notices not exceeding three lines free to subscribers.

☞ These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

Lepidoptera—I have for exchange first class specimens of Wanted in series for cash or exchange beetles of the genus *Serica* (Scarabaeidae) from all parts of North America. *Cicindela lincolniana* Casey among the exchanges offered. R. W. Dawson, Department of Entomology, University Farm, Lincoln, Nebraska.

Wanted for Cash—Lowest insects of all families, preserved in fluid, for phylogenetic study. G. C. Crampton, Amherst, Mass.

Wanted—South American and Indian macrolepidoptera in exchange for Australian specimens in any order. (Rev.) H. S. Bodley, The Vicarage, Birchip, Victoria, Australia.

Wanted—A series of volumes of the Candian Entomologist including vols. 29, 30 and 31; also Ontario Entomological Society Reports, Nos. 2, 3, 4, 8 and 9. State condition and price wanted. M. H. Ruhmann, Vernon, British Columbia.

For Exchange—Have rare western Lepidoptera which I will exchange for butterflies, (North American preferred.) Send lists of your offerta.—Dr. John Comstock, 321 South Hill St., Los Angeles, Cal.

Wanted—Canadian Entomologist. Part xx of H. F. Wickham's Coleoptera of Canada or complete number of Can. Ent., xxix, Feb., 1897, containing same. Also Farmers' Bulletins 189 and 191. Geo M. Greene, 2534 W. Columbia Ave., Philadelphia, Pa.

Catocalae—For exchange; perfect specimens of *Faustina* var. *zillah, similis, gracilis.* Desire other *Catocalae.*—Ernest Baylis, 5011 Saul Street, Phila., Pa.

Incisalia polios for Exchange—Want *I. irus, augustus, niphon, T. damon* and *Thecla* from South and West. Also have *L. pontiac* to exchange for "Skippers." H. M. Bower, 702 First National Bank Bldg., Milwaukee, Wis.

Wanted to Exchange—I wish to exchange Actias luna cocoons for Lepidoptera. Carl Selinger, 4419 Dover St., Chicago, Ill.

Will pay cash for Pars 39 and 52: Coleopterorum Catalogus, of Junk. Jos. O. Beaulne, 3653 Notre Dame East, Montreal, Canada.

Wanted—Living and preserved material of Tabanid and other dipterous larvae and pupae. Tabanid larvae obtained by sifting soil at edge of ponds and streams. Packing in wet material, not water, each larva separate, in glass vials or tins. To preserve use boiling water, then alcohol. Exchange: Insects of all orders, or cash. Werner Marchand, 10 Dickinson St., Princeton, N. J.

Live Pupae of Sph. chersis, drupiferarum, luscitiosa, eremitus, Phil. achemon, Deid. inscripta, Paon. excaecatus, myops, Eac. imperialis, Cres. juglandis and others for exchange. Wanted—N. A. and Exotic Lepidoptera. Will pay cash for N. A. Catocalas. Herman J. Erb, 925 Hatch Ave., Woodhaven, Lg. Isl., New York.

Wanted for Cash or Exchange—Exotic Lycaenidae and some species from the U. S. Send me your offerta and lowest cash price. Paul N. Musgrave, 130 Oak Street, Clarksburg, W. Va.

Wanted—Syrphidae, Bombylidae and Coccinellidae from all parts of the world in exchange; also Florida insects for those from other regions. P. W. Fattig, Box 315, Gainesville, Fla.

COLEOPTERA ILLUSTRATA

CARABIDAE **Vol. I, No. 4** **CARABIDAE**

PRICE $1.00 **CONTENTS** **PRICE $1.00**

Omophron
limbatus *Fabr.*
Notiophilus
biguttatus *Fabr.*
Dyschirius
nitidus *Dej.*
salinus *Schaum.*
globosus *Hrbst.*
Laemostenus
complanatus *Dej.*
Sphodrus
leucophthalmus *Linn.*
juvencus *Ball.*
Calathus
caucasicus *Chaud.*
fuscipes *Goeze.*
erratus *Sahl.*
Dolichus
halensis *Schall.*
halensis *Schall.*
v. rufithorax
Platynus
scrobiculatus *Fabr.*
Anchomenus
assimilis *Payk.*
cyaneus *Dej.*
Agonum
sexpunctatum *Linn.*
marginatum *Linn.*
mullerii *Hrbst.*
scitulum *Dej.*
Clibanarius
dorsalis *Pontopp.*
Pterostichus
nimbatus *Moraw.*
eurymorpha *Tsch.*
depressidorsis *Rttr.*
findelii *Dej.*
zieglerii *Duft.*
metallicus *Fabr.*
panzerii *Panz.*
fasciatopunctatus *Creutz.*
justusii *Redt.*
dufourii *Dej.*
ambiguus *Fairm.*
rhilensis *Rttbg.*
swaneticus *Rttr.*
Pterostichus
lacunosus *Chaud.*
reiserii *Gangl.*
validiusculus *Chaud.*
caucasicus *Men.*
bicolor *Arag.*
cribratus *Dej.*
variolatus *Dej.*
fossulatus *Quens.*
Abax
passerinii *Dej.*
Pseudopercus
politus *Dej.*
Molops
elatus *Fabr.*
piceus
Tanythrix
senilis *Schaum.*
Corsyra
fusula *Fisch.*
Masoreus
aegyptiacus *Fej.*
Lebia
chlorocephala *Hoffm.*

With Index of Volume 1 Complete.

Accurate Enlarged Pen Drawings, Uniform in Size, One to a Page, 8vo.

Coleoptera Illustrata will be mailed upon receipt of price.

HOWARD NOTMAN

136 Joralemon St., Brooklyn, N. Y., U. S. A.

SOLD

I have sold my 1918 stock of Catocala ovae to Mr. T. D. Mayfield, 50 Columbia Street, Newark, New Jersey.

TOM SPAULDING,
R. F. D. No. 1. Box 274, Provo, Utah.

Entomological Books

Catalogue No. 6

To be issued early in January; will contain numerous attractive offerings, especially of periodicals, items on Lepidoptera (including the library of the late W. D. Kearfott), items by Thomas Say, etc. About 100 pages.

Owing to the many recent changes of address, it is requested that all those desiring this Catalogue will apply by card, giving correct present address.

Complete Entomological Libraries gladly purchased, also library duplicates. Cash paid in all cases on receipt of books.

JOHN D. SHERMAN, Jr.

24 CLAREMONT AVENUE

Mount Vernon, New York

List of Coleoptera of North America

By CHARLES W. LENG

TO BE PUBLISHED IN THE SPRING OF 1919, PROVIDED 500 PAID SUBSCRIPTIONS ARE OBTAINED BEFORE FEBRUARY 1st

---

This long needed work has now been completed, and the untiring and painstaking efforts of Mr. Leng have resulted in a book which will be indispensable to all those interested in this Order of insects.

The main features are briefly these :—

I. Complete list of the species, varieties and synonyms, about 30,000 in all, together with page reference to the place in which each was originally described, and also an indication of distribution—the whole arranged in genera, tribes and families, according to recent systems of classification. The species are numbered in the usual manner for the convenience of those desiring it.

II. Complete list of all works containing original descriptions of North American species, from 1758 to the end of 1918.

III. Complete list of the Fossil species of North America, prepared by Professor H. F. Wickham.

These three divisions of the book will require about 400 pages of text.

The book will be the size of Col. Casey's "Memoirs of Coleoptera," about 7 x 10 inches, the text printed two columns to the page, with some marginal space for annotations, which may be made in ink, if desired.

The subscription price has been fixed at the lowest possible amount to encourage all who are interested to subscribe at once, and in this way insure early publication of the book. In order to bring about this result, it will be necessary for all subscribers able to do so to take two or more copies.

PRICE, UNBOUND, INCLUDING DELIVERY, FIVE DOLLARS AND FIFTY CENTS
PRINTED ON ONE SIDE ONLY, SEVEN DOLLARS
PAYABLE IN ADVANCE IN ALL CASES

Owing to the high cost and scarcity of paper and labor, it is not practicable to print a large edition, and the price will have to be materially increased upon publication.

SEND ALL SUBSCRIPTIONS AND REMITTANCES TO THE PUBLISHER

JOHN D. SHERMAN, Jr.

24 Claremont Avenue, Mount Vernon, New York

The Celebrated Original Dust and Pest-Proof
METAL CABINETS
FOR SCHMITT BOXES

These cabinets have a specially constructed groove or trough around the front, lined with a material of our own design, which is adjustable to the pressure of the front cover. The cover, when in place, is made fast by spring wire locks or clasps, causing a constant pressure on the lining in the groove. The cabinet, in addition to being absolutely dust, moth and dermestes proof, is impervious to fire, smoke, water and atmospheric changes. Obviously, these cabinets are far superior to any constructed of non-metallic material.

The interior is made of metal, with upright partition in center. On the sides are metal supports to hold 28 boxes. The regular size is 42½ in. high, 13 in. deep, 18⅞ in. wide, inside dimensions; usually enameled green outside. For details of Dr. Skinner's construction of this cabinet, see Entomological News, Vol. XV, page 177.

METAL INSECT BOX has all the essential merits of the cabinet, having a groove, clasps, etc. Bottom inside lined with cork; the outside enameled any color desired. The regular dimensions, outside, are 9 x 13 x 2½ in. deep, but can be furnished any size.

WOOD INSECT BOX.—We do not assert that this wooden box has all the qualities of the metal box, especially in regard to safety from smoke, fire, water and dampness, but the chemically prepared material fastened to the under edge of the lid makes a box, we think, superior to any other wood insect box. The bottom is cork lined. Outside varnished. For catalogue and prices inquire of

BROCK BROS., Harvard Square, Cambridge, Mass.

RECENT LITERATURE

FOR SALE BY

THE AMERICAN ENTOMOLOGICAL SOCIETY

1900 RACE ST., PHILADELPHIA, PA.

GENERAL SUBJECTS.

2101.—**Williston** (S. W.).—Portrait of S. W. Williston (Ent. News, **29**, pl., xviii, 1918) ..... .10

ARACHNIDA.

2103.—**Faust** (E. C.).—A new tyroglyphid for western Montana. (Ent. News, **29**, 336-340, 1 pl., 1918) ..... .15

HYMENOPTERA.

2102.—**Beutenmuller** (W.).—Notes on Cynipidae, with description of a new species. (Ent. News, **29**, 327-330, 1918) .10

ODONATA.

784.—**Whedon** (A. D.).—The comparative morphology and possible adaptation of the abdomen in the Odonata. (Trans. **44**, 374-437, 9 pls., 1918) 1.20

ORTHOPTERA.

783.—**Rehn** (J. A. G.).—Descriptions of one new genus and fifteen new species of tropical American Orthoptera. (Trans., **44**, 321-372, 2 pls., 1918) ..... .85

2104.—**Hancock** (J. L.).—A new genus and two new species of tettigids, with a note on Nomotettix borealis. (Ent. News, **29**, 343-347, 1 pl., 1918) ..... .15

2105.—**Fox** (H.).—On a long-winged or caudate phase of Neotettix proavus. (Ent. News, **29**, 347-349 (ill.), 1918). .10

NEW ARRIVALS

From Columbia, So. America:

OVER 10,000 BUTTERFLIES, INCLUDING

Morpho cypris
" sulkowskyi
Morpho amathonte
Caligo spp.

From Cuba:

1500 BUTTERFLIES AND MOTHS, INCLUDING

Papilio columbus
" andraemon
" celadon
" devilliersi
Urania boisduvali
Erinyis guttalaris
Protoparce brontes, etc.

From Venezuela:

Over 5000 Lepidoptera
200 Dynastes hercules

From New Guinea:

2000 Coleoptera
200 Orthoptera

From Assam, India:

1200 BUTTERFLIES AND MOTHS, INCLUDING

Papilio arcturus
" philoxenus
Kallima inachis
Brahmaea wallachi

And Many Other Showy Species

From Tibet (Bhutan)

Armandia lidderdalii
Parnassius hardwicki

CATALOGUES OF ENTOMOLOGICAL SUPPLIES AND SPECIMENS ON APPLICATION

If interested kindly send your list of desiderata for further information to

THE KNY-SCHEERER CORPORATION

Department of Natural Science
G. Lagai, Ph.D.

New York
404-410 W. 27th Street